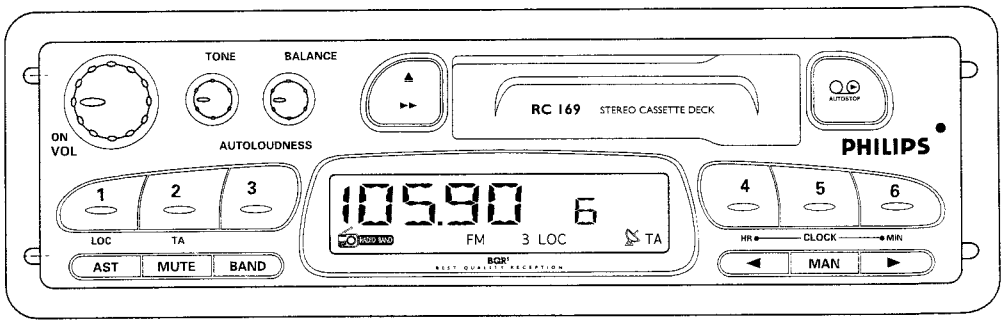
Cassette Car Radio 79RC169/00/80
79RC189/00/80

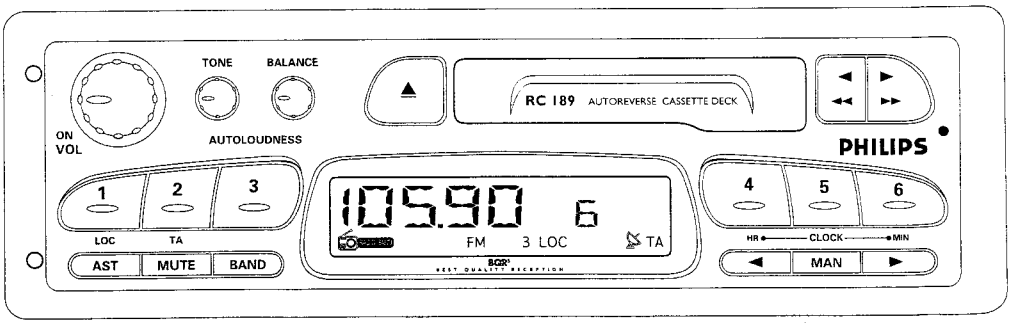
Service
Service
Service

For repair information of the cassette deck see Service Manual of Car cassette deck TN301NX-227 (for RC169) or CDS-36PS2 (for RC189)

Service Manual

12 V





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Technical Specifications

General

Power Supply	:	9.5 - 15.6V
Quiescent Current (at 12.6V)	:	< 4.0mA
Fuse	:	3A

Radio

FM	:	87.5 - 108MHz, 50kHz step
LW	:	144 - 288kHz, 1kHz step
MW	:	531 - 1629kHz, 9kHz step
Aerial input impedence	:	75 ohm
IF-FM (1/2)	:	10.7MHz/72.2MHz
IF-AM(1/2)	:	10.7MHz/450kHz
α - 3dB	:	6~10μV
SDS (10 dB channel separation)	:	150uV $\pm$ 3dB
Stereo channel separation	:	> 21dB
FM sensitivity for 26dB S/N	:	< 4.4μV
MW sensitivity for 26dB S/N	:	< 22μV
LW sensitivity for 26dB S/N	:	< 35μV

Cassette Deck

Number of tracks	:	2 X 2
Tapespeed	:	4.76 cm/second +3% -1%
Wow and Flutter	:	< 0.35%

Amplifier

Output Power (D=10%)	:	2x4.5W $\pm$ 1dB/4Ω
Loudness (auto)	:	4~8dB at 100Hz
Tone	:	8~24dB at 10kHz

ESD

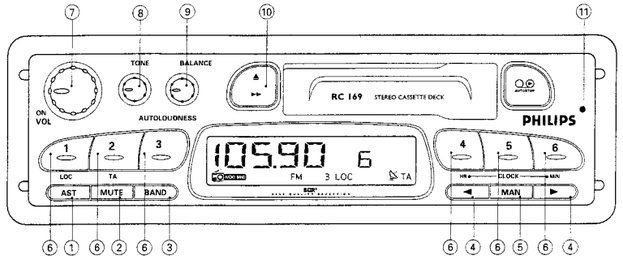
WARNING

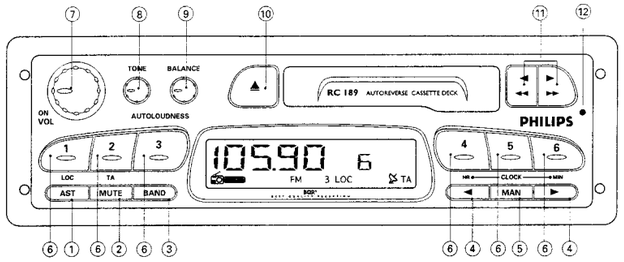
All IC's and many semiconductors are susceptible to electronic discharges (ESD). Careless handling during repair can reduce life drastically.

When repairing, make sure that you care connected to the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools also at this potential.

ESD Equipment :

Anti-static table mat	large 1200x650x1.25mm	4822 466 10953
	small 600x650x1.25mm	4822 466 10958
Anti-static wrist band		4822 395 10223
Connection box (1MOhm)		4822 320 11307
Extendible cable (to connect wrist band to conn. box)		4822 320 11305
Connecting cable (to connect table mat to conn. box)		4822 320 11306
Earth cable (to connect any product to mat or box)		4822 320 11308
Complete kit ESD3 (combining all above products)		4822 310 10671
Wristband tester		4822 344 13999





SUMMARY OF CONTROLS

① Auto Store (AST) /
Local/Distant mode (LOC)
② Mute (MUTE) / Traffic Announcement (TA)
③ Band (BAND)
④ Search tuning and manual tuning (◄ and ►) /
Clock adjust (*HR* and *MIN*)
⑤ Manual tuning on/off (MAN) /
Clock key (CLOCK)
⑥ Presets (1-6)
⑦ On/off-Volume (ON-VOL)
⑧ Tone (TONE)

For RC169 only
⑨ Balance (BALANCE)
⑩ Cassette eject (▲) and fast forward (►►)
⑪ Blinking LED

For RC189 only
⑨ Balance (BALANCE)
⑩ Cassette eject (▲)
⑪ Fast forward and rewind (◄◄ and ►►) /
Reverse tape direction (◄►)
⑫ Blinking LED

CLOCK
The radio incorporates a 24 hours clock.

Clock display
– Press the CLOCK key for at least 2 seconds (until you hear a beep).
– The display shows the time. After any tuning operations, the frequency will be displayed for about 10 seconds.

Setting the clock
– While the display shows the clock time, you can adjust time setting by pressing a 2-key combination as follow:
CLOCK+ ◄ to adjust hours
CLOCK+ ► to adjust minutes
To switch back to frequency display, press the CLOCK key for about 2 seconds (until you hear a beep).

TRAFFIC ANNOUNCEMENTS ON FM
You can switch on the TA mode to give priority to Traffic Announcements. Traffic Announcements can then interrupt cassette playback or mute.

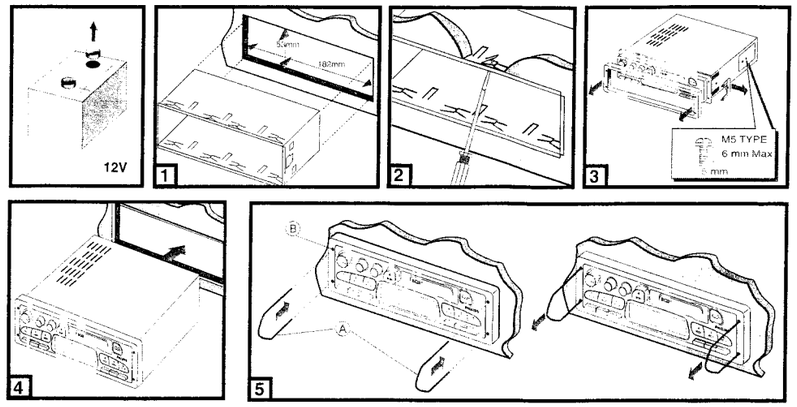
Volume level for Traffic Announcements
If you only want to hear Traffic Announcement.
- Tune to your prefered TA-station.
- Adjust the desired volume.
- Briefly press 'MUTE'.

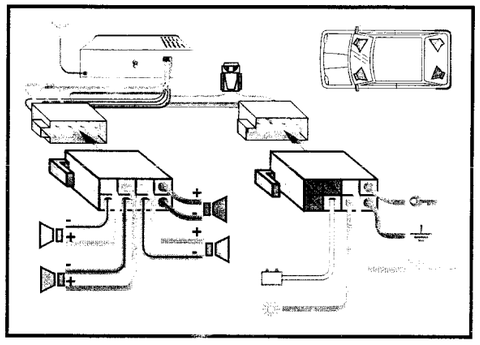
Switch on TA mode (so that Traffic Announcements have priority)
- Select a FM band with BAND key.
- Press the TA key for at least 2 seconds (until you hear a beep). The display shows ' TA'.
- If the tuned station does not enable the reception of Traffic Announcements,the display shows 'NO TA'. The radio automatically searches an appropriate station.
- You will hear the Traffic Announcements when broadcast.
- If you play a cassette, the radio will interrupt cassette playback each time a Traffic Announcement is broadcast.

Interrupting a Traffic Announcement
If you do not wish to continue listening to a particular Traffic Announcement, you can interrupt it without switching off the TA mode.
- Briefly press the 'MUTE' to silence the set or,
- Press the TA key for at least 2 seconds (until you hear a beep).The set will return to its previous operating mode.

Switching off TA mode (so that Traffic Announcements do not have priority)
- Press the TA key for at least 2 seconds (until you hear a beep). TA disappears from the display.

Note:
– If the TA mode is switched on,search tuning only selects stations which enable the reception of Traffic Announcements.
– If the tuned station becomes too weak to enable the set to provide the RDS traffic service,you will hear beeps repeated at intervals.Use search tuning to find another station.





Philips Car Systems
Security Card
KEEP THIS CARD SAFELY – NOT IN YOUR CAR.
CRIN NO.
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MOUNTING INSTRUCTION

Voltage and polarity: The set must be connected to a 12V car battery with negative terminal to earth (car chassis).

Warning: To prevent short-circuiting, disconnect the negative car battery terminal until the set has been mounted and connected.

INSTALLING METAL SLEEVE
- Install the metal sleeve in the dashboard (Fig.1).
- Fix metal sleeve into place by pressing the metal tags outwards using a screwdriver (Fig.2).
- If installing this set in a Japanese car, use the side holes which align with the holes in the side of the mounting opening (Fig.3).
- Only use M5 screws that are not longer than 6mm. If necessary, remove the trimplate around the front panel and the side springs (Fig.3).

POWER SUPPLY AND LOUDSPEAKER
If your car is equipped with ISO connectors, simply insert them in connectors of the car radio. If not, you can use an adaptor cable (Refer to the table at the end of this booklet).

Connection details
Power supply
- **Red lead** : Connect to a switched 12V supply (switched on/off by car ignition).
- **Yellow/red lead** : Connect to a permanent 12V supply.
This supply is needed for the set's memory.
- **Grey lead** : Connect to a 12V supply.
When the car headlamps are switched on, the rotary knobs of radio are illuminated (even when the radio is switched off).
- **Brown lead** : Connect to earth (car chassis).

Loudspeakers (only use 4ohm loudspeakers)
- Do not connect any of the loudspeaker leads to earth or directly to a booster/amplifier.
- **Connecting 4 loudspeakers**

	Front	Rear
Left+	Green	Brown
Left-	Green/black	Brown/black
Right+	Grey	Blue
Right-	Grey/black	Blue/black

OTHER CONNECTIONS
- **Automatic Aerial**: This radio can provide a 12V signal for the control of an automatic motor aerial or the supply of an electronic aerial by connection .
- Do not use this connection for the supply lead of the aerial motor!

MOUNTING RADIO (Figs.4)
- Insert aerial plug into aerial socket (good reception is only possible with a good aerial).
- Slide the radio into the metal sleeve until the springs at either side of the radio snap into the openings of the sleeve .
- Finally reconnect the negative car battery terminal.

REMOVING RADIO (using the two U- brackets supplied)
- Insert both U-brackets Ⓐ into the holes Ⓑ until they lock. Pull out the radio (Fig.5).

REPLACING FUSE
- Use a 3A blade-type fuse (Fig.6).

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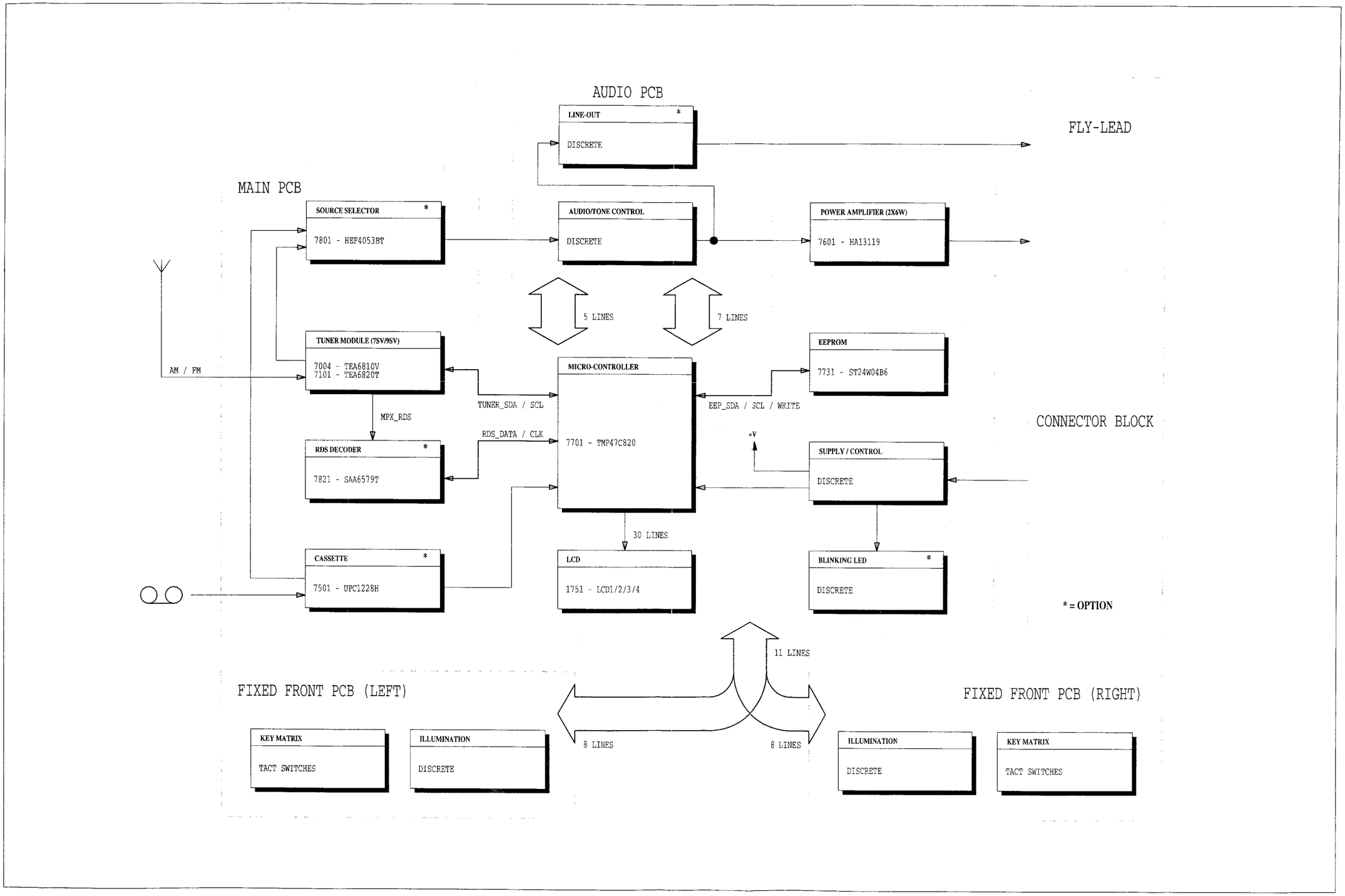
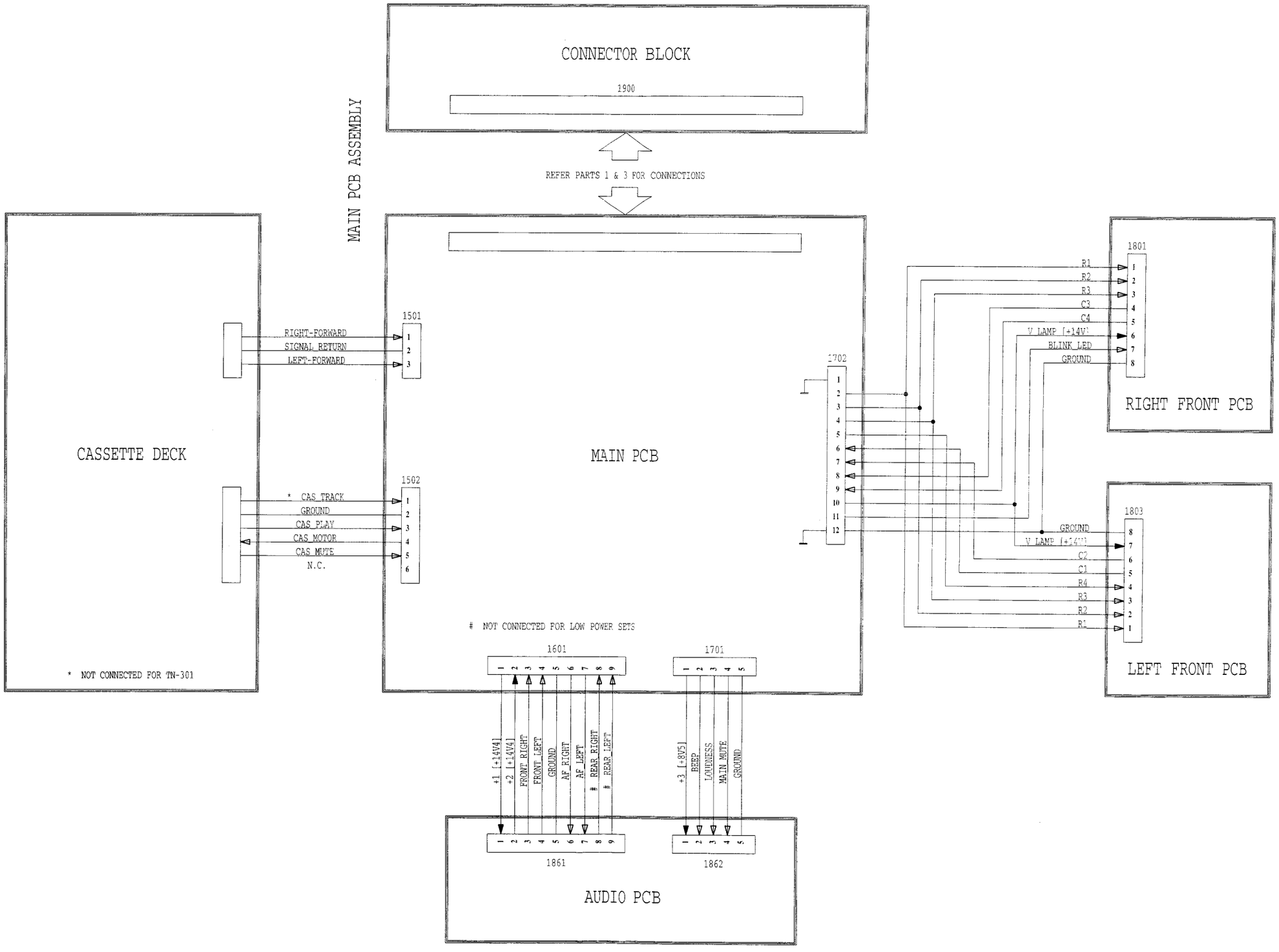
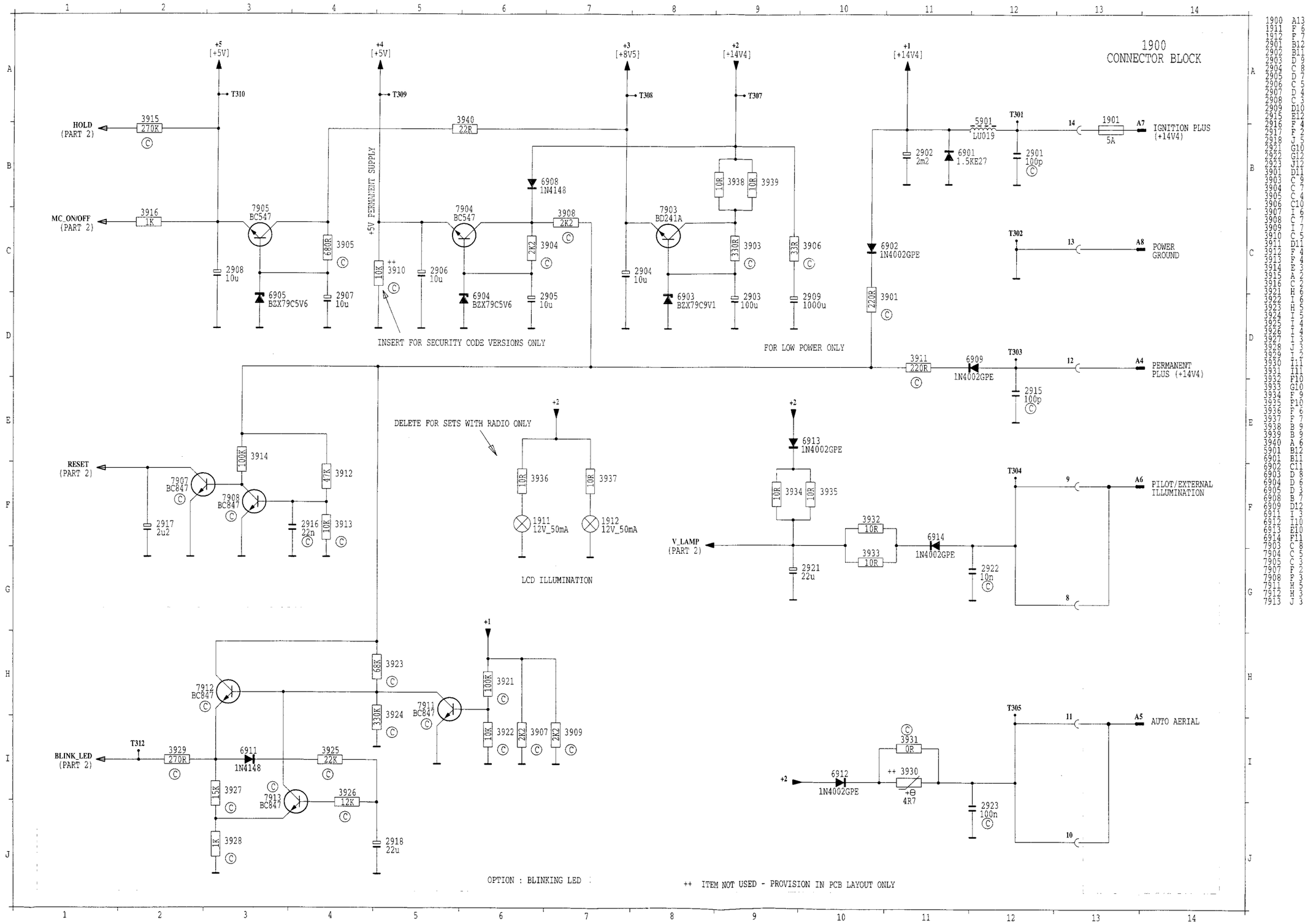
PART A : ELECTRICAL ARCHITECTURE



PART B : WIRING DIAGRAM

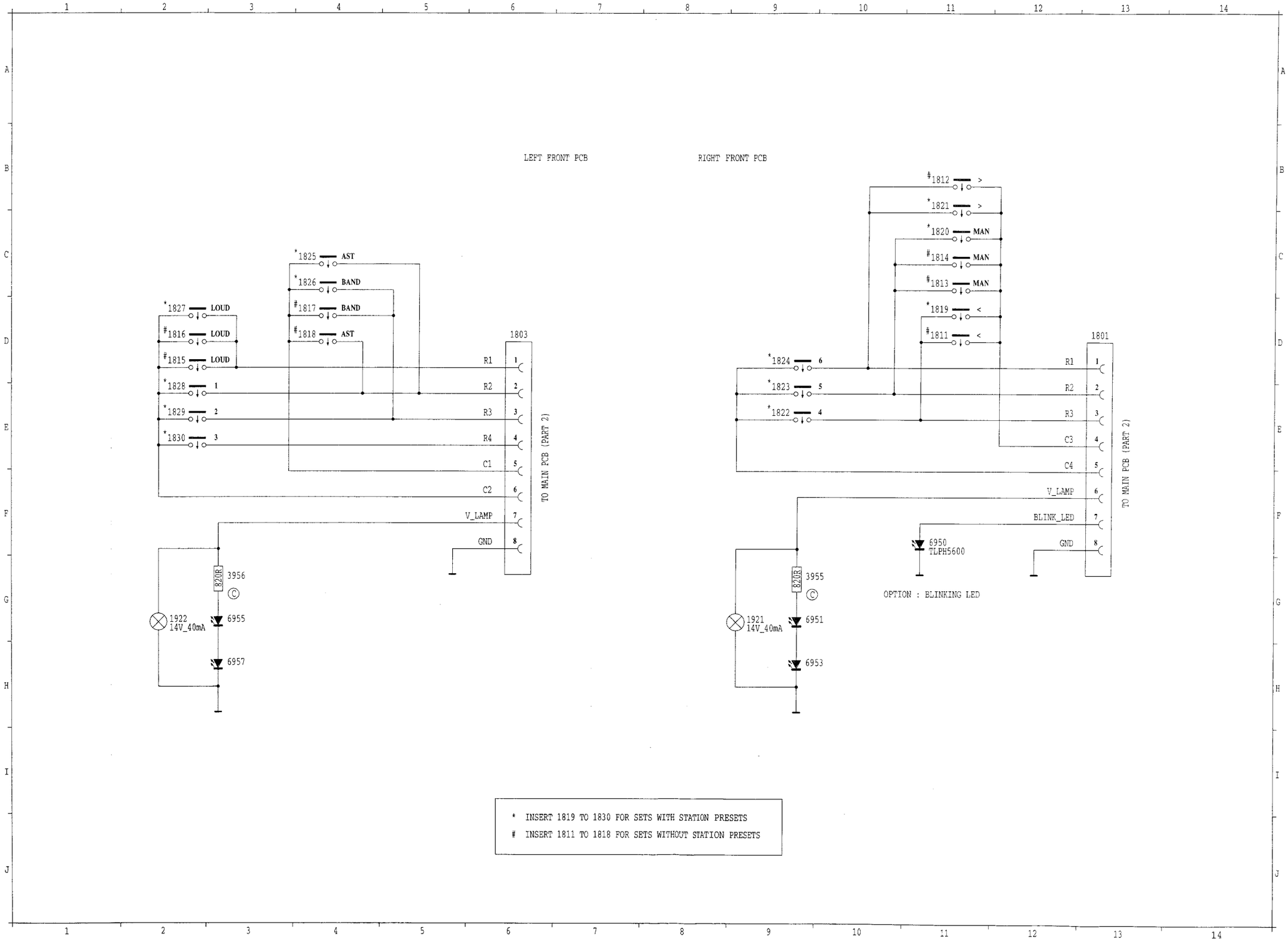


PART 3 : SUPPLY/CONTROL & BLINKING LED (MAIN PCB)



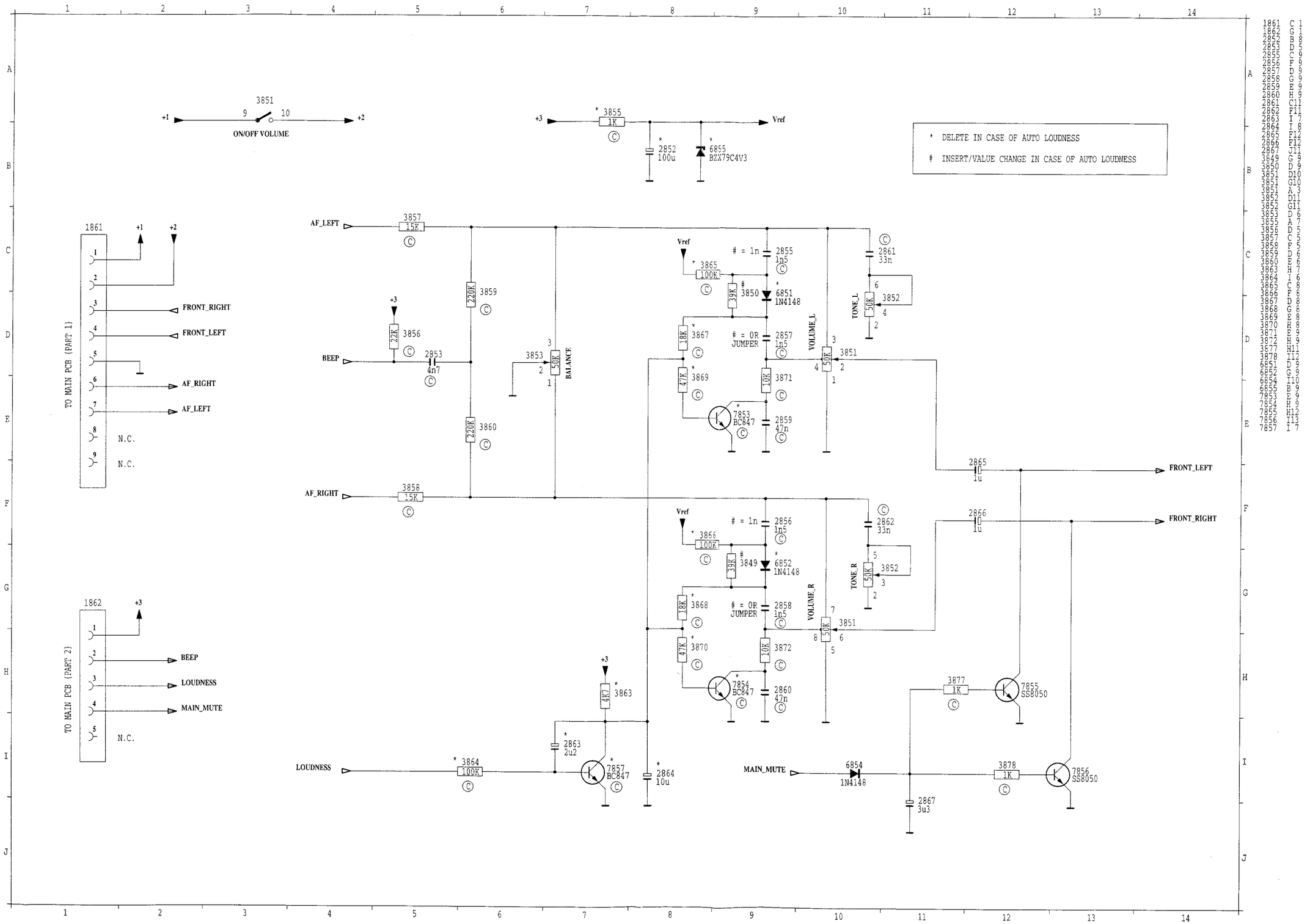
1900 A13
1911 F 6
1912 F 7
2901 B12
2902 B11
2903 D 9
2904 C 8
2905 D 7
2906 C 5
2907 D 4
2908 C 3
2909 D10
2915 E12
2916 F 4
2917 F 2
2918 J 5
2921 G10
2922 G12
2923 I12
3901 D11
3903 C 9
3904 C 7
3905 C 4
3906 C10
3907 I 6
3908 C 7
3909 I 7
3910 C 5
3911 D11
3912 F 4
3913 F 3
3914 F 2
3915 E 5
3916 C 5
3921 H 6
3922 H 6
3923 H 5
3924 I 5
3925 I 4
3926 I 4
3927 I 3
3928 J 3
3929 I 2
3930 I11
3931 I11
3932 F10
3933 G10
3934 F 9
3935 F10
3936 F 6
3937 F 7
3938 B 9
3939 B 9
3940 A 6
5901 B12
6901 B11
6902 C11
6903 D 8
6904 D 6
6905 D 3
6908 B 7
6909 D12
6911 I 3
6912 I10
6913 F10
6914 F11
7903 C 8
7904 C 5
7905 C 3
7907 F 2
7908 F 3
7911 H 5
7912 H 3
7913 J 3

PART 4 : KEY MATRIX & ILLUMINATION (FRONT PCB)



1801 D13
1803 D 6
1811 D11
1812 B11
1813 C11
1814 C11
1815 D 2
1816 D 2
1817 D 4
1818 D 4
1819 D11
1820 C11
1821 B11
1822 E 9
1823 E 9
1824 D 9
1825 C 4
1826 C 4
1827 D 2
1828 E 2
1829 E 2
1830 E 2
1921 G 9
1922 G 2
3955 G10
3956 G 3
6950 F11
6951 G10
6953 H10
6955 G 3
6957 H 3

PART 5 : TONE CONTROL (AUDIO PCB)



1861 C 1
1862 G 1
2852 B 8
2853 C 5
2855 C 5
2856 F 5
2857 D 5
2858 G 5
2859 E 9
2860 H 9
2861 C11
2862 F11
2863 I 7
2864 I 8
2865 F12
2866 F12
2867 J11
3849 G 9
3850 D 9
3851 D10
3851 G10
3851 A 3
3852 D11
3852 G11
3853 D 6
3855 A 7
3856 D 5
3857 C 5
3858 F 5
3859 E 6
3860 H 7
3863 I 6
3864 I 8
3865 C 8
3866 F 8
3867 C 8
3868 G 8
3869 E 8
3870 H 8
3871 E 9
3872 H 9
3877 H11
3878 I12
6851 D 9
6852 G 9
6854 I10
6855 B 9
7853 E 9
7854 H 9
7855 H12
7856 I13
7857 I 7

ADDITIONAL FUNCTION CHECK:

Item	Input	Output
External illumination +	Set off Inject +12V at pin A6	Power pilot light turns ON.
Auto Antenna	Connect a resistor of 25Ω from A5 to GND. Switch on set.	Voltage drop between pin A7 & A5 < 1V.
Line-out (only for RC188)	Tuner set to FM mode, 97MHz Inject 97Mhz, 22.5kHz dev. E'=1mV, 1kHz mod. Set volume setting at 1Vrms at speaker output.	Measure at Line-out Flyleads a 1kHz AF signal of 200mVrms.

POWER IGNITION CHECK :

Steps	Permanent (A4)	Ignition (A7)	Action	Observation
1	ON	ON	Turn set ON with power key.	Set is turn on.
2	ON	OFF	Switch OFF ignition	Set switches off. Blinking LED (if any) should blink.
3	ON	ON	Switch ON ignition.	Set will be on.

TUNER CHECK:

IC96 7SV/9SV module is a Non repairable module, complete spare parts as an module is readily available. For general check, please refer to the manual " General Check & Alignment procedures for Car Systems" 4822 725 25456. Use a matching circuit (artifical aerials) with Zi = 75ohm.

CHECK	TUNE IN	OUTPUT
α – 3 dB	FM 97.5MHz, 1mV, Dev=22.5kHz, f mod. = 400Hz FM 97.5MHz, 8uV, Dev=22.5kHz, f mod. = 400Hz	Conn. Block B3, B5 = 0dB (reference level) Conn. Block B3, B5 = -3dB
SDS 10dB Crosstalk	FM 97.5MHz, 1mV, Dev=22.5kHz, f mod. = 1kHz FM 97.5MHz, 150uV, Dev=22.5kHz, f mod. = 1kHz (L)	Conn. Block B3, B5 = 0dB (reference level) Conn. Block B3 = -10dB
Stereo Channel separation	FM 97.5MHz, 1mV, Dev=22.5kHz, f mod. = 1kHz FM 97.5MHz, 1mV, Dev=22.5kHz, f mod. = 1kHz (L)	Conn. Block B3, B5 = 0dB (reference level) Conn. Block B3 ≤ -21dB
26dB SNR	FM 97.5MHz, 4.4uV, Dev=22.5kHz, f mod. = 1kHz FM 97.5MHz, 4.4uV, Dev=22.5kHz, unmodulated	Conn. Block B3, B5 = 0dB (reference level) Conn. Block B3, B5 ≤ -26dB
FM Demodulated level	FM 97.5MHz, 1mV, Dev=22.5kHz, f mod. = 1kHz	Pin 13 of IC96 = 280mV (AC) ± 3dB Pin 7 of IC96 = 215mV (AC) ± 2dB
FM Search Sensitivity	FM 97.5MHz, unmodulated	DX : 10uV < E < 20uV LO : 190uV < E < 290uV
AM Demodulated level	AM 1053kHz, 1mV, m=30%, f mod. = 1kHz	Pin 13 of IC96 = 280mV (AC) ± 2dB
26dB SNR	MW 1053kHz, 22uV, m=30%, f mod. = 1kHz MW 1053kHz, 22uV, unmodulated	Conn. Block B3, B5 = 0dB (reference level) Conn. Block B3, B5 ≤ -26dB
26dB SNR	LW 207kHz, 35uV, m=30%, f mod. = 1kHz LW 207kHz, 35uV, unmodulated	Conn. Block B3, B5 = 0dB (reference level) Conn. Block B3, B5 ≤ -26dB
AM Search Sensitivity	AM 1053kHz, unmodulated	DX : E = 14uV LO : E = 70uV

CLOCK ALIGNMENT :

Signal	Test point	Frequency	Aligned with
CLK	Pin 49 of main uP	682.667Hz	2705
GND	Power supply Gnd		

Service Test Mode :
Press and hold Band key, then turn on the set to enter the service test mode. There are three level of service test mode :

First level : LCD display test. All segments of the LCD are lighted up.

Second level : Software release status
"XXXYY r" deontes : RCXXX/YY release 1
e.g. "16900 r" deontes : RC169/00 release 1

Third level : Tuner reception check
"XXXX F M"

XXXX - 4 figures of tuned frequency
F- Field strength
range 0 ..... F hexadecimal
(corresponds to Poor signal strength ..... Good signal strength)
M - Multipath
range 0 ... F hexadecimal
(corresponds to No multipath signal ..... Multipath signal present)

TMP47C820

PINS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
FM(V)	2.95	2.95	2.95	2.95	2.95	2.95	NC	NC	NC	1.05	NC	NC	NC	0.22	0	0.03	0.03
AM(V)	2.95	2.95	2.95	2.95	2.95	2.95	NC	NC	NC	1.05	NC	NC	NC	0.22	0	0.03	0.03
TAPE(V)	2.95	2.95	2.95	2.95	2.95	2.95	NC	NC	NC	1.05	NC	NC	NC	0.22	0	0.03	0.03

PINS	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
FM(V)	0.05	NC	0	2.25	2.34	4.75	4.69	NC	4.8	4.8	4.8	0	4.8	2.39	4.8	4.85	0
AM(V)	0.05	NC	0	2.25	2.34	4.75	4.69	NC	4.8	4.8	4.8	0	4.8	2.39	4.8	4.85	0
TAPE(V)	8.78	NC	0	4.21	4.96	4.87	4.69	NC	4.8	0	4.8	0.7	4.8	2.39	4.8	4.96	0

PINS	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
FM(V)	4.8	0.04	NC	2.4	4.89	4.9	4.9	4.9	4.9	4.9	4.9	4.9	0	0	0	0	1.82
AM(V)	4.8	0.04	NC	2.4	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	0	0	0	0	1.82
TAPE(V)	4.8	0.02	NC	2.4	4.96	4.96	4.96	4.96	4.96	4.96	4.96	4.96	0	0	0	0	1.82

PINS	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68
FM(V)	2.32	NC	NC	NC	NC	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95
AM(V)	2.32	NC	NC	NC	NC	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95
TAPE(V)	2.38	NC	NC	NC	NC	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95

PINS	69	70	71	72	73	74	75	76	77	78	79	80
FM(V)	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95
AM(V)	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95
TAPE(V)	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95

UPC1228

PINS	1	2	3	4	5	6	7	8
(V)	1.17	0.81	2.95	8.46	0	2.95	0.81	1.17

TDA8561Q

PINS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
(V)	2.15	0	2.15	7.03	14.4	6.93	0	6.9	NC	6.93	0	6.94	14.3	14	2.15	14.3	2.15

ST24C0286

PINS	1	2	3	4	5	6	7	8
V	4.96	4.9	4.9	0	4.96	4.96	4.96	4.96

HA13119

PINS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
V	0.4	0	3.82	0	0	0.4	NC	7	NC	14	NC	0	14.4	14	7

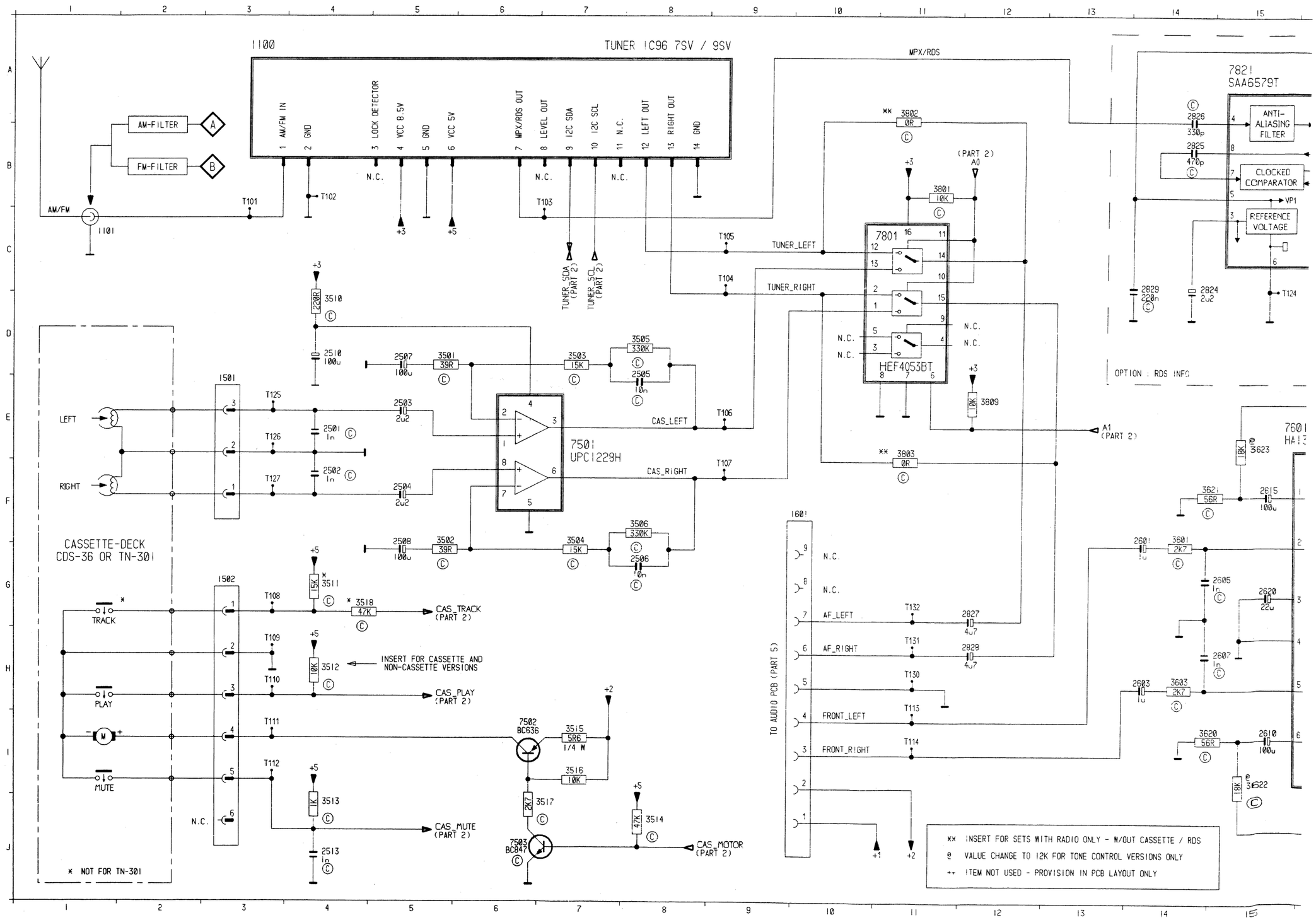
SAA6579T

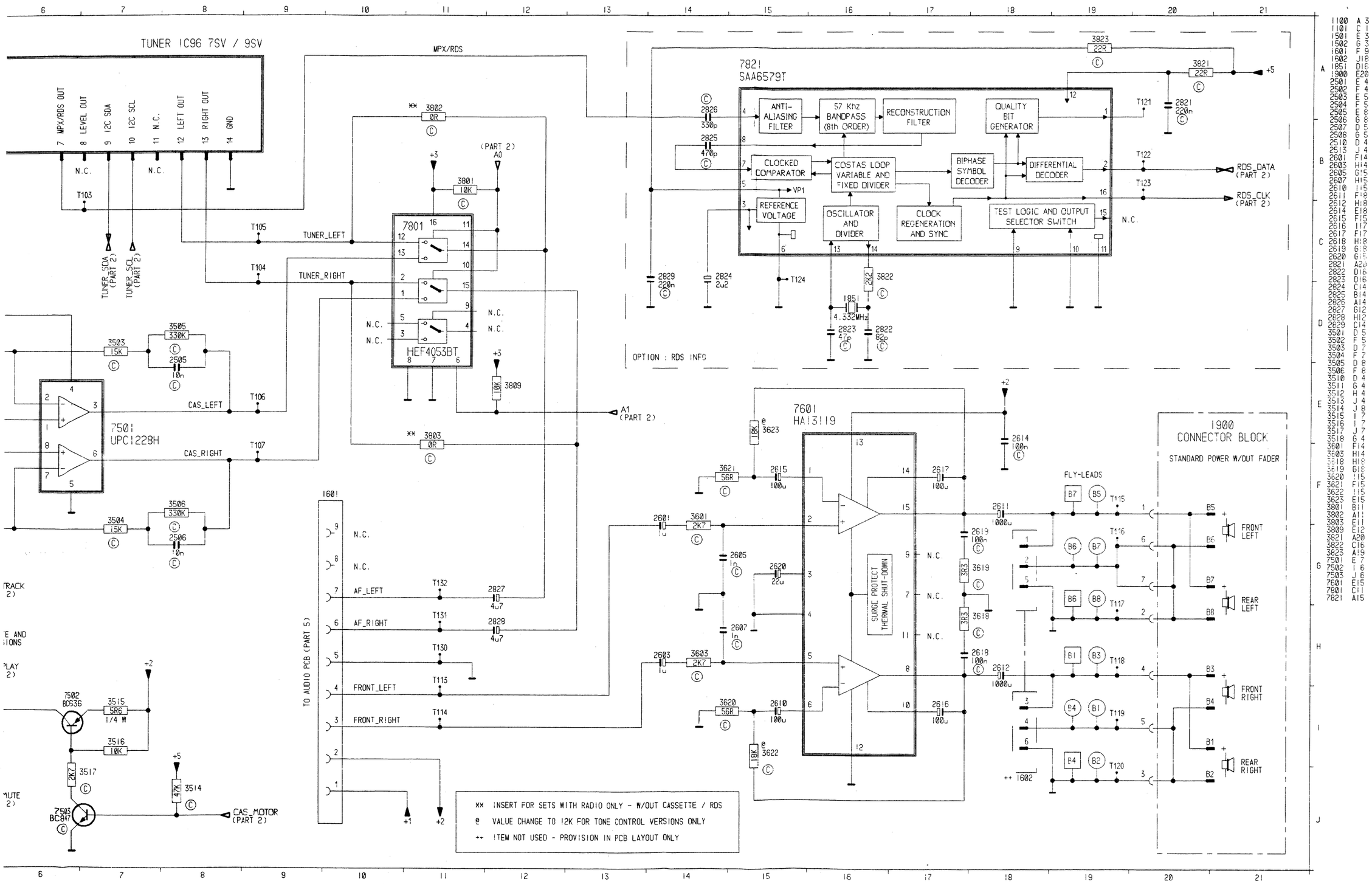
PINS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
V	2.5	2.5	2.39	2.37	4.8	0	2.36	2.4	0	0	0	4.8	2.1	2.35	NC	2.4

TRANSISTOR

NO	7903	7904	7905
b	9.15	5.6	5.53
c	13.5	13.5	7.04
e	8.5	4.9	4.8

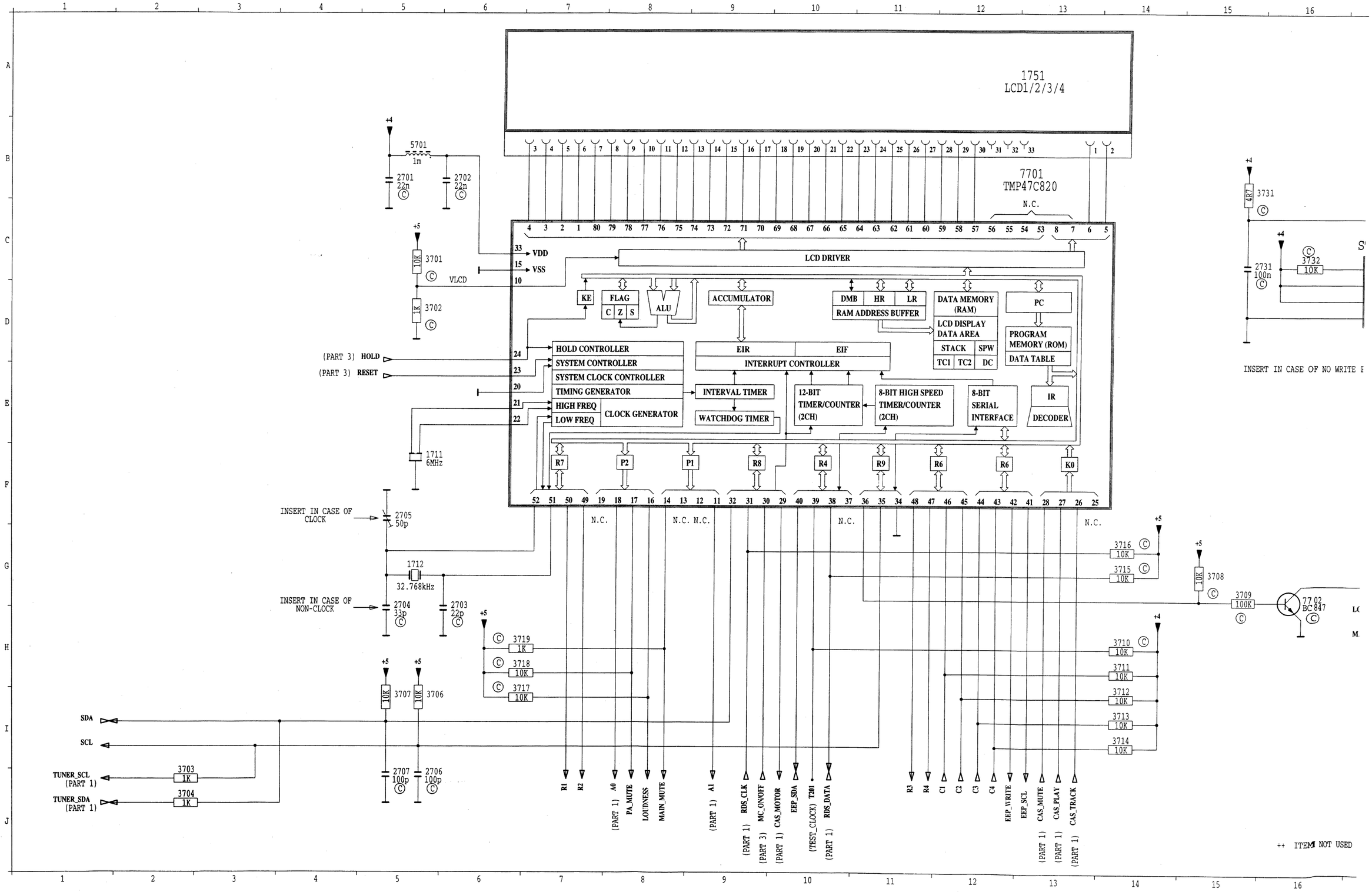
PART 1 : TUNER, RDS, CASSETTE & POWER AMPLIFIER (MAIN PCB)

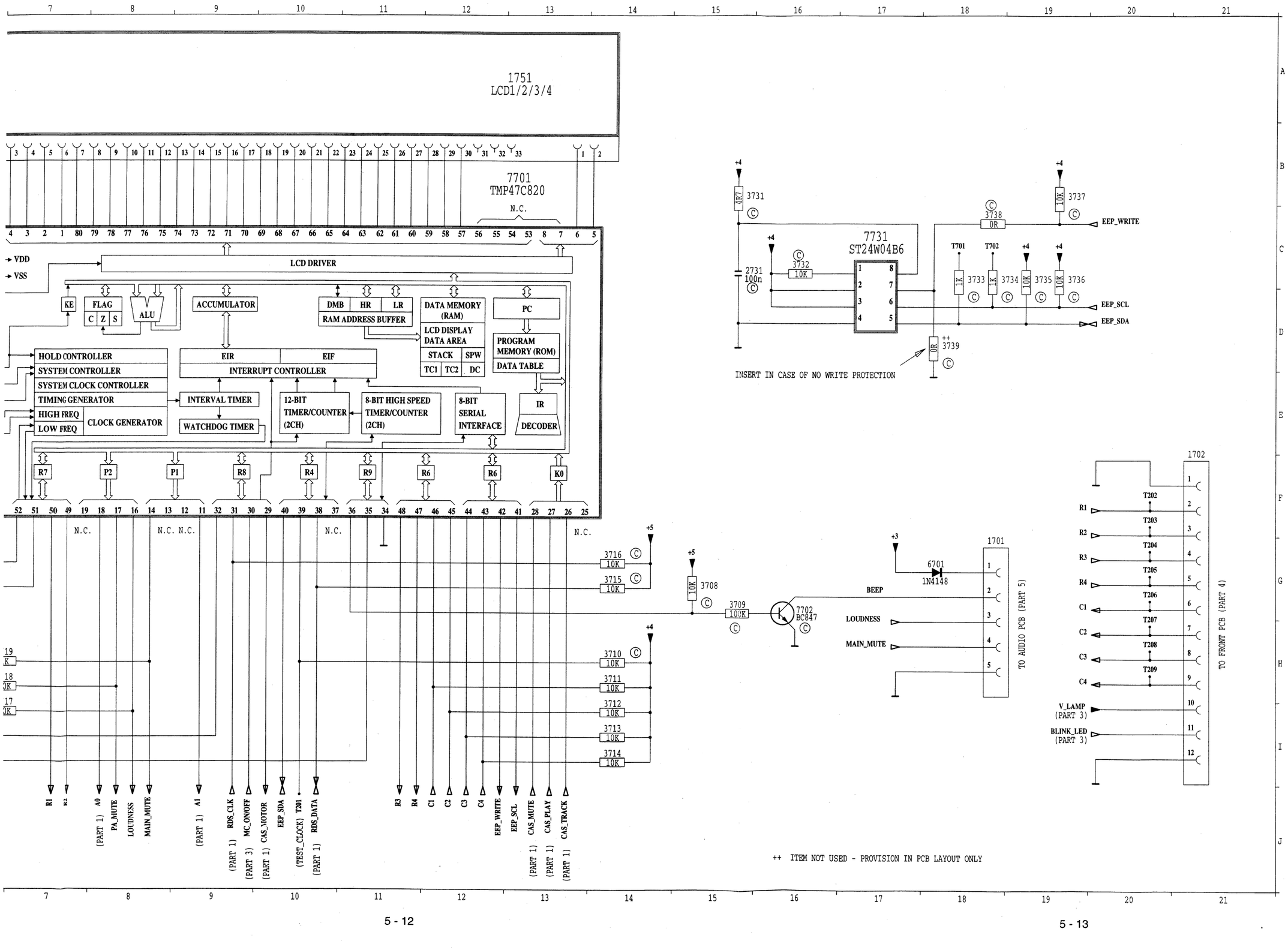




1100 A 3
1101 C 1
1501 E 3
1502 G 3
1601 F 9
1602 J 8
A 1851 D 6
1900 E 20
2501 E 4
2502 F 4
2503 E 5
2504 E 5
2505 F 5
2506 G 5
2507 D 5
2508 G 5
2510 D 4
2513 J 4
B 2601 F 4
2603 H 4
2605 G 5
2607 H 5
2610 I 5
2611 F 6
2612 H 6
2614 E 8
2615 F 5
2616 I 7
2617 F 7
C 2618 H 8
2619 G 8
2620 G 5
2821 A 2
2822 D 6
2823 D 6
2824 C 4
2825 B 4
2826 A 4
2827 G 2
2828 H 2
D 2829 C 4
3501 C 5
3502 F 5
3503 D 7
3504 F 7
3505 D 8
3506 F 8
3510 D 4
3511 G 4
3512 H 4
E 3513 J 4
3514 J 8
3515 I 7
3516 I 7
3517 J 7
3518 G 4
3601 F 4
3603 H 4
3619 G 8
3620 I 5
F 3621 F 5
3622 I 5
3623 E 5
3801 B 1
3802 A 1
3803 E 1
3809 E 2
3621 A 20
3822 C 16
3823 A 19
7501 E 7
G 7502 I 6
7503 J 6
7601 E 5
7801 C 1
7821 A 5

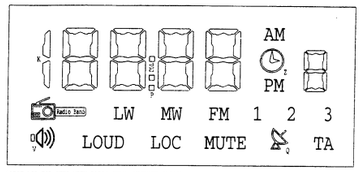
PART 2 : MICRO-CONTROLLER, EEPROM & LCD (MAIN PCB)





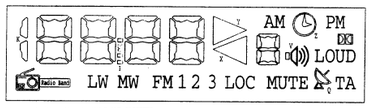
1701 G18
1702 F21
1711 E 5
1712 G 5
1751 A12
2701 F 5
2702 B 6
2703 H 6
2704 H 5
2705 F 5
2706 J 5
2707 J 5
2731 C15
3701 C 5
3702 D 5
3703 J 2
3704 J 2
3706 I 5
3707 I 5
3708 G15
3709 G15
3710 H14
3711 H14
3712 I14
3713 I14
3714 I14
3715 G14
3716 G14
3717 I 7
3718 H 7
3719 H 7
3731 B16
3732 C16
3733 C18
3734 C19
3735 C19
3736 C19
3737 B19
3738 C18
3739 D18
5701 B 5
6701 G18
7701 B12
7702 G16
7731 C17

PART 2A : LCD & PIN-OUT TABLE



LARGE LCD FOR SETS WITH RADIO ONLY (WITHOUT CASSETTE)

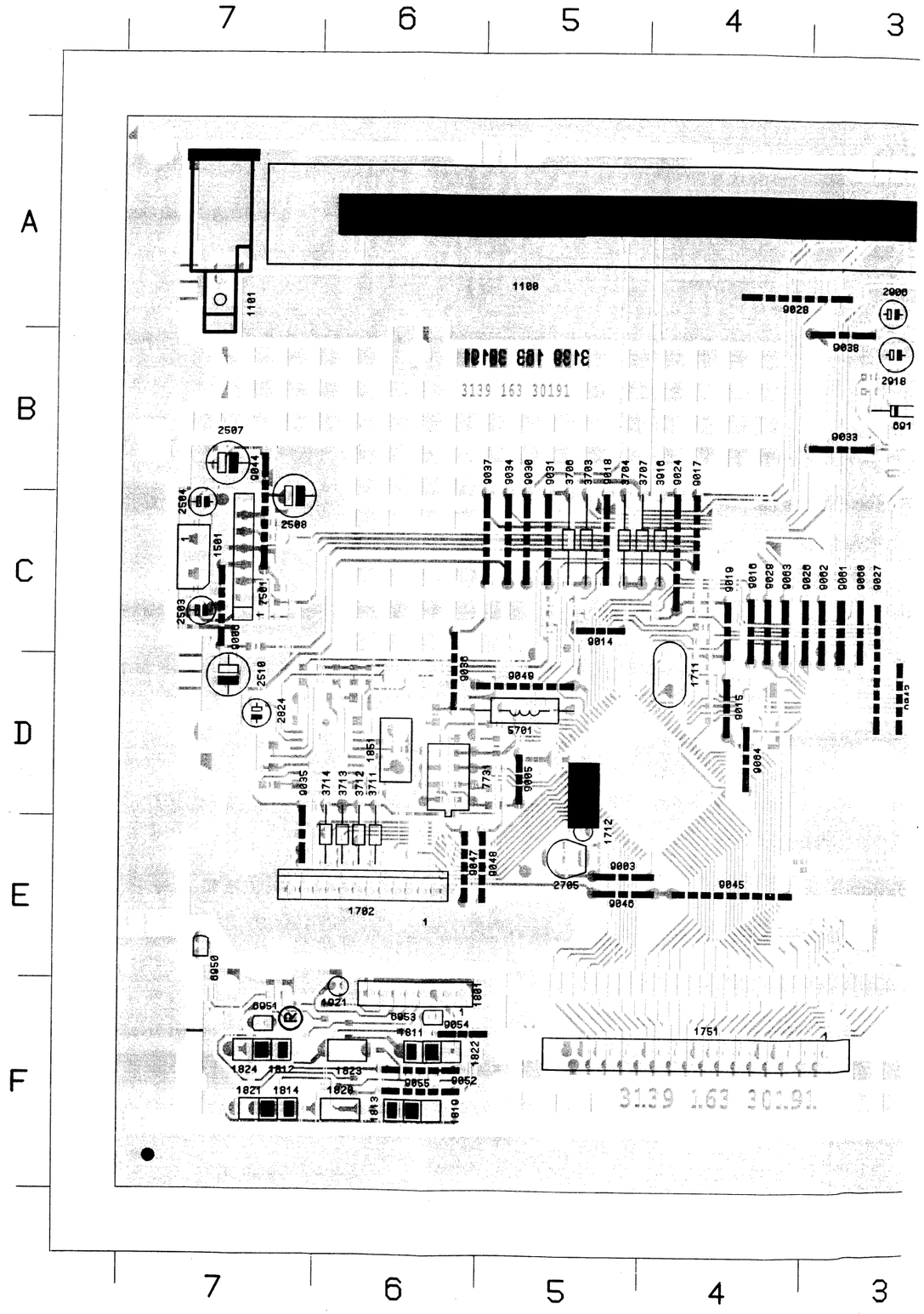
7701 DRIVER PINS	1751 LCD PINS	COM 1	COM 2
6	1	COM 1	
5	2		COM 2
4	3	1e	LW
3	4	1d	1c
2	5	1f	1g
1	6	1a	1b
80	7	2e	MW
79	8	2d	2c
78	9	2f	2g
77	10	2a	2b
76	11	K	P
75	12		
74	13	3e	FM
73	14	3d	3c
72	15	3f	3g
71	16	3a	3b
70	17	4e	1
69	18	4d	4c
68	19	4f	4g
67	20	4a	4b
66	21	2	3
65	22	MUTE	LOC
64	23	5e	LOUD, V
63	24	5d	5c
62	25	5f	5g
61	26	5a	5b
60	27	DOLBY	TA, Q
59	28	AM	COL
58	29	PM	Z
57	30	Radio Band	



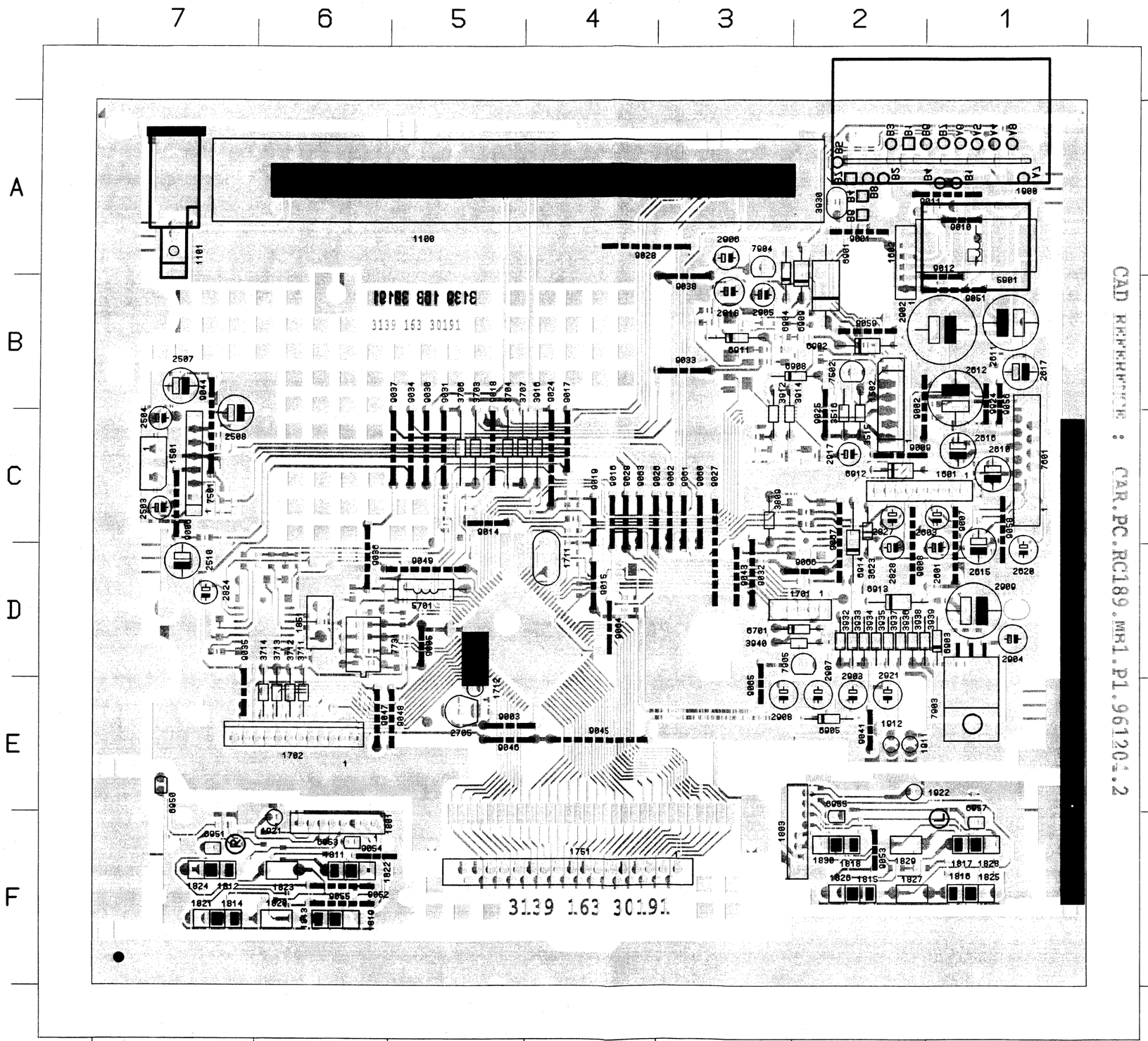
SMALL LCD FOR SETS WITH RADIO AND CASSETTE

7701 DRIVER PINS	1751 LCD PINS	COM 1	COM 2
6	1	COM 1	
5	2		COM 2
4	3	1e	LW
3	4	1d	1c
2	5	1f	1g
1	6	1a	1b
80	7	2e	MW
79	8	2d	2c
78	9	2f	2g
77	10	2a	2b
76	11	K	P
75	12	X	Y
74	13	3e	FM
73	14	3d	3c
72	15	3f	3g
71	16	3a	3b
70	17	4e	1
69	18	4d	4c
68	19	4f	4g
67	20	4a	4b
66	21	2	3
65	22	MUTE	LOC
64	23	5e	LOUD, V
63	24	5d	5c
62	25	5f	5g
61	26	5a	5b
60	27	DOLBY	TA, Q
59	28	AM	COL
58	29	PM	Z
57	30	Radio Band	

Component Layout

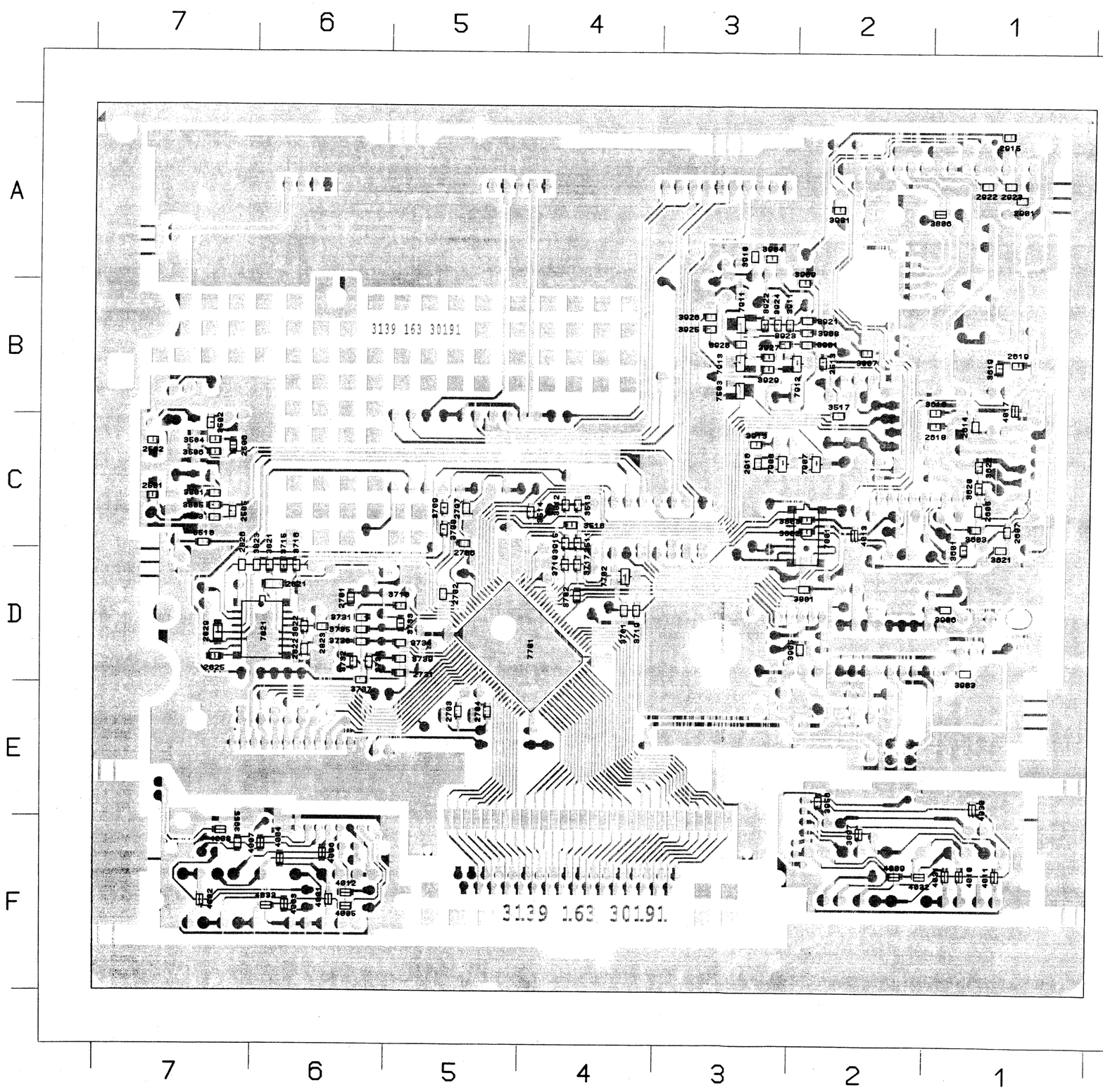


Component Layout

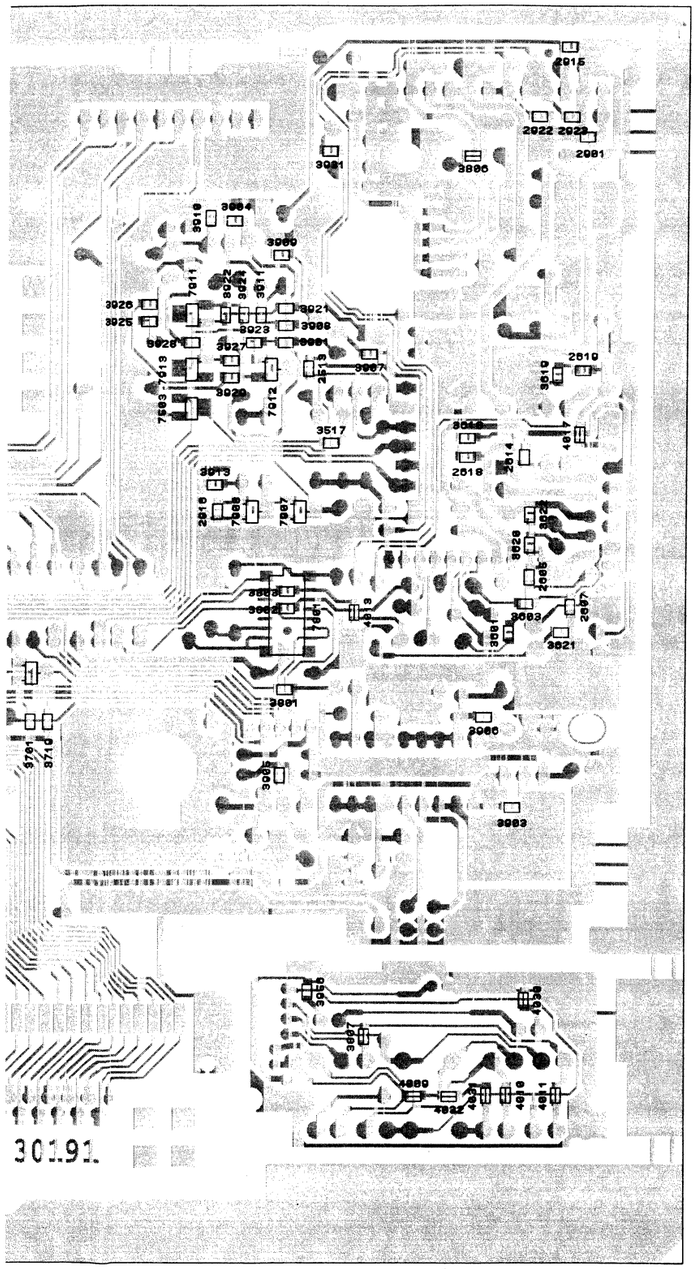


1100 A 6	5701 D 5	9054 F 6
1101 A 7	5901 A 1	9055 F 6
1501 C 7	6701 D 2	9056 B 1
1502 B 2	6901 B 2	9058 C 1
1601 C 2	6902 B 2	9059 B 2
1602 A 2	6903 D 1	9060 C 3
1701 D 2	6904 A 3	9061 C 3
1702 E 6	6905 E 2	9062 C 3
1712 E 5	6908 B 2	9063 C 4
1751 F 4	6909 A 2	9064 D 4
1801 F 6	6911 B 3	9065 E 3
1803 F 2	6912 C 2	9066 D 2
1811 F 6	6913 D 2	9067 C 2
1812 F 7	6914 C 2	9924 B 1
1813 F 6	6950 E 7	
1814 F 7	6951 F 7	
1815 F 2	6953 F 6	
1816 F 1	6955 F 2	
1817 F 1	6957 F 1	
1818 F 2	7501 C 7	
1819 F 6	7601 C 1	
1820 F 6	7731 D 6	
1821 F 7	7903 D 1	
1822 F 6	9001 A 2	
1823 F 6	9002 B 2	
1824 F 7	9003 E 5	
1825 F 1	9005 D 5	
1826 F 2	9006 C 7	
1827 F 2	9007 D 1	
1828 F 1	9008 D 2	
1829 F 2	9009 C 2	
1830 F 2	9010 A 1	
1900 A 1	9011 A 1	
1911 E 2	9012 B 1	
1912 E 2	9014 C 5	
1921 F 6	9015 D 4	
1922 E 2	9016 C 4	
2611 B 1	9017 C 4	
2612 B 1	9018 C 5	
2705 E 5	9019 C 4	
2902 B 1	9024 C 4	
2909 D 1	9025 C 2	
3515 C 2	9026 C 4	
3516 C 2	9027 D 3	
3623 C 2	9028 A 4	
3703 C 5	9029 C 4	
3704 C 5	9030 C 5	
3706 C 5	9031 C 5	
3707 C 5	9032 D 3	
3711 E 6	9033 B 3	
3712 E 6	9034 C 5	
3713 E 6	9035 E 7	
3714 E 6	9036 D 6	
3809 C 3	9037 C 5	
3912 C 3	9038 B 3	
3914 C 3	9041 E 2	
3916 C 4	9043 D 3	
3932 D 2	9044 C 7	
3933 D 2	9045 E 4	
3934 D 2	9046 E 5	
3935 D 2	9047 E 6	
3936 D 2	9048 E 5	
3937 D 2	9049 D 5	
3938 D 2	9051 B 1	
3939 D 2	9052 F 6	
3940 D 2	9053 F 2	

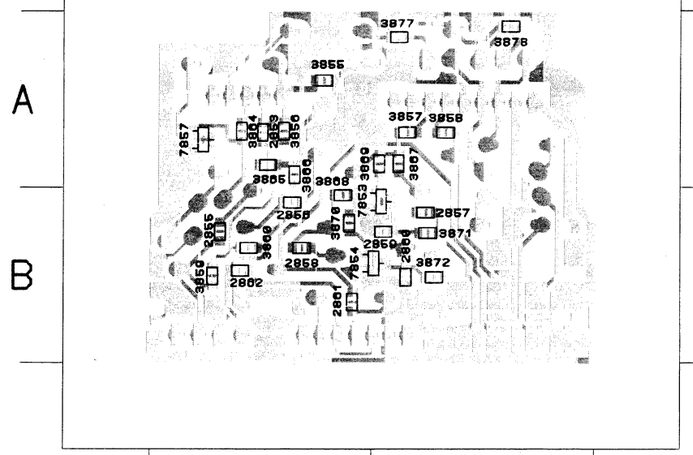
Chip Layout



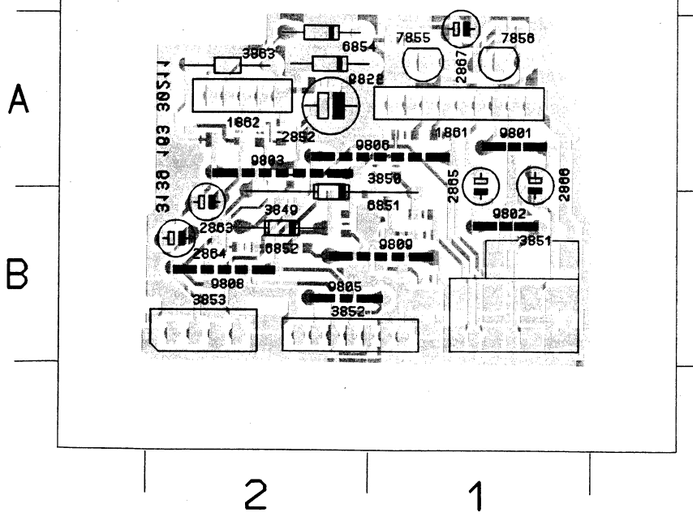
2501	C 7	3739	D 5
2502	C 7	3801	D 2
2505	C 7	3802	C 2
2506	C 7	3803	C 2
2513	B 2	3806	A 1
2605	C 1	3807	F 2
2607	C 1	3821	D 6
2614	C 1	3822	D 6
2618	C 1	3823	D 6
2619	B 1	3901	B 2
2701	D 6	3903	D 1
2702	D 5	3904	A 3
2703	E 5	3905	D 2
2704	E 5	3906	D 1
2706	C 5	3907	B 2
2707	C 5	3908	B 2
2731	D 5	3909	B 2
2821	D 6	3910	A 3
2822	D 6	3911	B 3
2823	D 6	3913	C 3
2825	D 7	3915	C 4
2826	D 7	3921	B 2
2829	D 7	3922	B 3
2901	A 1	3923	B 3
2915	A 1	3924	B 3
2916	C 3	3925	B 3
2922	A 1	3926	B 3
2923	A 1	3927	B 3
3501	C 7	3928	B 3
3502	C 7	3929	B 3
3503	C 7	3931	A 2
3504	C 7	3955	F 7
3505	C 7	3956	E 2
3506	C 7	4001	F 6
3510	C 7	4002	F 7
3511	C 4	4003	F 6
3512	C 4	4004	F 6
3513	C 4	4005	F 6
3514	C 4	4006	F 6
3517	B 2	4007	F 6
3518	C 4	4008	F 7
3601	C 1	4009	F 2
3603	C 1	4010	F 1
3618	B 1	4011	F 1
3619	B 1	4012	F 6
3620	C 1	4013	C 2
3621	C 1	4017	B 1
3622	C 1	4030	E 1
3701	D 4	4031	F 1
3702	D 4	4032	F 2
3708	C 5	4033	F 6
3709	C 5	7503	B 3
3710	D 5	7701	D 5
3715	D 6	7702	D 4
3716	D 6	7801	C 2
3717	D 4	7821	D 6
3718	D 4	7907	C 2
3719	D 4	7908	C 3
3731	D 6	7911	B 3
3732	D 6	7912	B 2
3733	D 5	7913	B 3
3734	D 5		
3735	D 6		
3736	D 6		
3737	D 6		
3738	D 6		



2501	C	7	3739	D	5
2502	C	7	3801	D	2
2505	C	7	3802	C	2
2506	C	7	3803	C	2
2513	B	2	3806	A	1
2605	C	1	3807	F	2
2607	C	1	3821	D	6
2614	C	1	3822	D	6
2618	C	1	3823	D	6
2619	B	1	3901	B	2
2701	D	6	3903	D	1
2702	D	5	3904	A	3
2703	E	5	3905	D	2
2704	E	5	3906	D	1
2706	C	5	3907	B	2
2707	C	5	3908	B	2
2731	D	5	3909	B	2
2821	D	6	3910	A	3
2822	D	6	3911	B	3
2823	D	6	3913	C	3
2825	D	7	3915	C	4
2826	D	7	3921	B	2
2829	D	7	3922	B	3
2901	A	1	3923	B	3
2915	A	1	3924	B	3
2916	C	3	3925	B	3
2922	A	1	3926	B	3
2923	A	1	3927	B	3
3501	C	7	3928	B	3
3502	C	7	3929	B	3
3503	C	7	3931	A	2
3504	C	7	3955	F	7
3505	C	7	3956	E	2
3506	C	7	4001	F	6
3510	C	7	4002	F	7
3511	C	4	4003	F	6
3512	C	4	4004	F	6
3513	C	4	4005	F	6
3514	C	4	4006	F	6
3517	B	2	4007	F	6
3518	C	4	4008	F	7
3601	C	1	4009	F	2
3603	C	1	4010	F	1
3618	B	1	4011	F	1
3619	B	1	4012	F	6
3620	C	1	4013	C	2
3621	C	1	4017	B	1
3622	C	1	4030	E	1
3701	D	4	4031	F	1
3702	D	4	4032	F	2
3708	C	5	4033	F	6
3709	C	5	7503	B	3
3710	D	5	7701	D	5
3715	D	6	7702	D	4
3716	D	6	7801	C	2
3717	D	4	7821	D	6
3718	D	4	7907	C	2
3719	D	4	7908	C	3
3731	D	6	7911	B	3
3732	D	6	7912	B	2
3733	D	5	7913	B	3
3734	D	5			
3735	D	6			
3736	D	6			
3737	D	6			
3738	D	6			

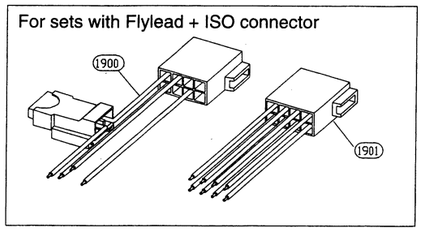


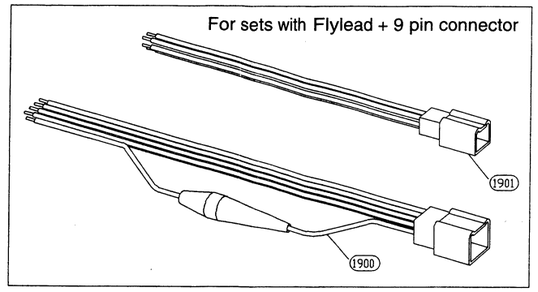
2853	A	2	3871	B	1
2855	B	2	3872	B	1
2856	B	2	3877	A	1
2857	B	1	3878	A	1
2858	B	2	7853	B	1
2859	B	1	7854	B	1
2860	B	1	7857	A	2
2861	B	2			
2862	B	2			
3855	A	2			
3856	A	2			
3857	A	1			
3858	A	1			
3859	B	2			
3860	B	2			
3864	A	2			
3865	A	2			
3866	A	2			
3867	A	1			
3868	B	2			
3869	A	1			
3870	B	2			

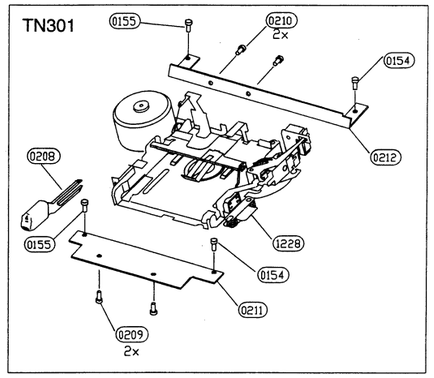


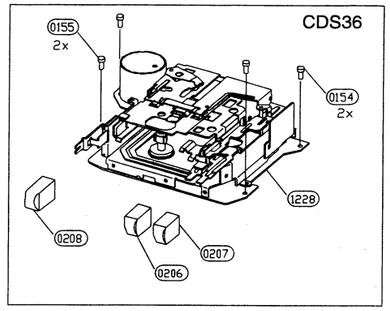
1861	A	1
1862	A	2
3849	B	2
3850	B	2
3852	B	2
3853	B	2
3863	A	2
6851	B	2
6852	B	2
6854	A	2
6855	A	2
7855	A	1
7856	A	1
9801	A	1
9802	B	1
9803	A	2
9805	B	2
9806	A	1
9808	B	2
9809	B	1
2852	A	2
2863	B	2
2864	B	2
2865	A	1
2866	A	1
2867	A	1
3851	B	1

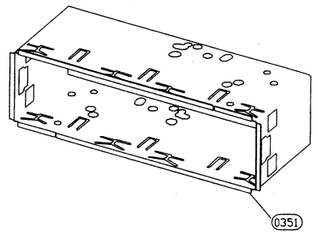
EXPLODED VIEW

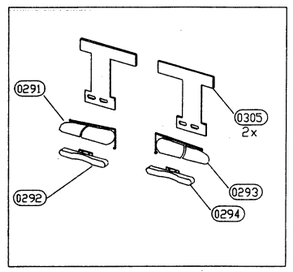


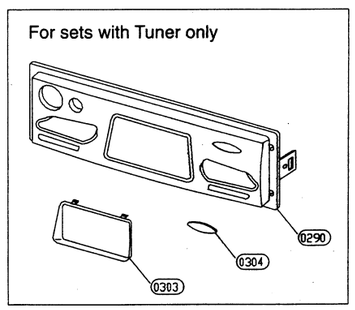


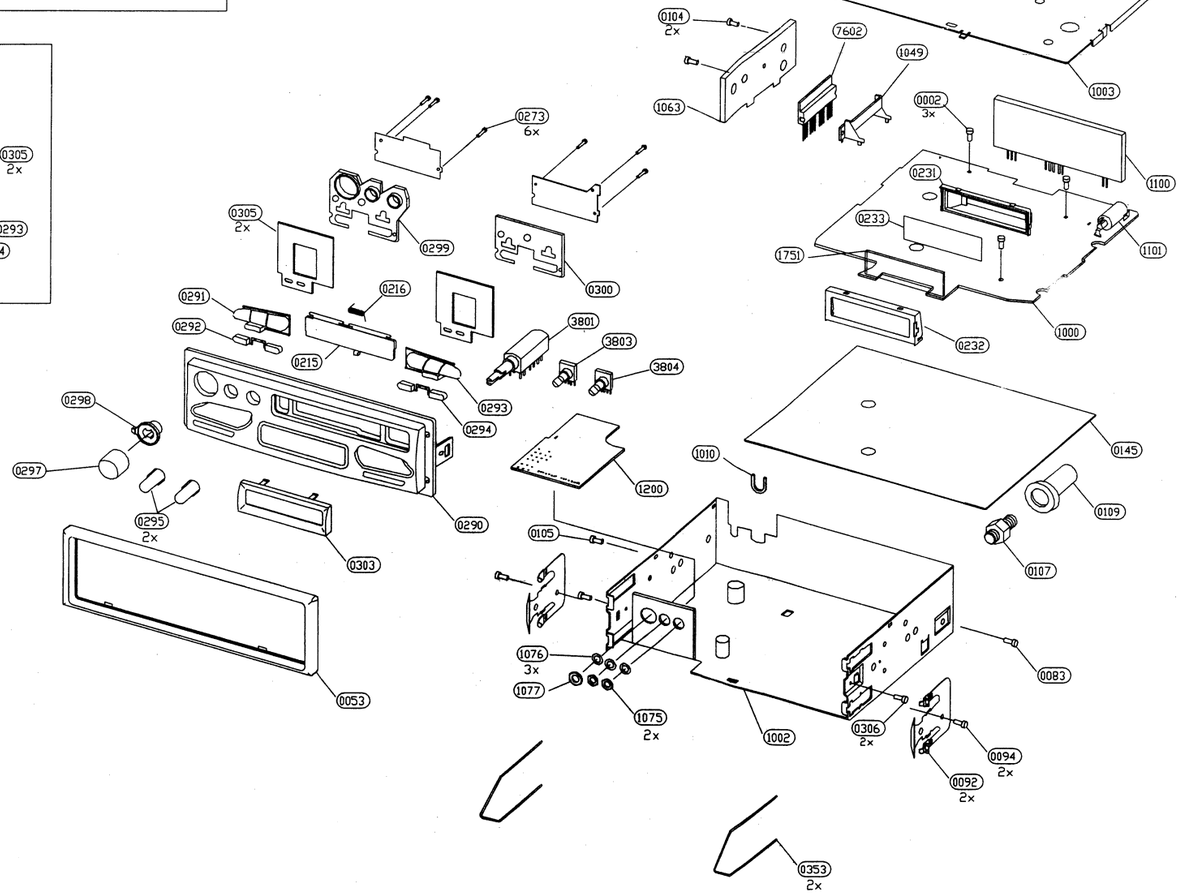












53	4822 466 11561	RIM
206	4822 410 11102	KNOB FF ASSY - RC189
207	4822 410 11103	KNOB REW ASSY - RC189
208	4822 410 11104	KNOB EJ ASSY - RC189
208	4822 410 11092	KNOB EJ ASSY - RC169
215	4822 443 10589	FLAP CASS ASSY - RC189
215	4822 443 10588	FLAP CASS ASSY - RC169
216	4822 492 11445	SPRING FLAP
290	4822 459 04542	PLATE ORN ASSY - RC189
290	4822 459 04541	PLATE ORN ASSY - RC169
291	4822 410 11101	4 KNOB ASSY L
292	4822 410 11085	2-KNOB ASSY L
293	4822 410 11086	4 KNOB ASSY R
294	4822 410 11087	2-KNOB ASSY R
295	4822 410 11091	TONE T/B/TR
297	4822 410 11093	KNOB VOL
353	4822 404 21314	PULL OUT KEY
	4822 736 15405	DFU - MULTI LANGUAGE
	4822 071 25002	BLADE FUSE 5A

PARTSLIST 79RC189/00/80

MAIN PCB : MISCELLANEOUS

1100	4822 210 10746	TUNER MODULE IC96 7SV
1711	4822 242 81002	RES CER 6MHZ CST6.00MGW
1712	4822 242 70938	RES XTL 32KHZ768
1751	4822 135 00114	LCD1 - NEGATVE
1819	4822 276 13091	SWI TACT 1P 50MA 12V
1820	4822 276 13091	SWI TACT 1P 50MA 12V
1821	4822 276 13091	SWI TACT 1P 50MA 12V
1822	4822 276 13091	SWI TACT 1P 50MA 12V
1823	4822 276 13091	SWI TACT 1P 50MA 12V
1824	4822 276 13091	SWI TACT 1P 50MA 12V
1825	4822 276 13091	SWI TACT 1P 50MA 12V
1826	4822 276 13091	SWI TACT 1P 50MA 12V
1827	4822 276 13091	SWI TACT 1P 50MA 12V
1828	4822 276 13091	SWI TACT 1P 50MA 12V
1829	4822 276 13091	SWI TACT 1P 50MA 12V
1830	4822 276 13091	SWI TACT 1P 50MA 12V
1851	4822 242 72195	QUARZ 4,332 MHZ AT51
1900	4822 265 10936	FLYLEAD + ISO SUPPLY
1901	4822 321 62645	FLYLEAD + ISO SPK CONN.
1911	4822 134 10082	LAMP 12V 50MA CLEAR
1912	4822 134 10082	LAMP 12V 50MA CLEAR
1921	4822 134 10069	LAMP 14V 40MA WITHOUT COLOUR CAP
1922	4822 134 10069	LAMP 14V 40MA WITHOUT COLOUR CAP

MAIN PCB : CAPACITOR

2705	5322 125 50295	CTRM 50V 6P- 50P NP0

MAIN PCB : COILS

5701	4822 157 53473	IND FXD LAL04 1000U PM10
5901	4822 156 21434	COIL CHOKE LU019

MAIN PCB : DIODE

6701	4822 130 30621	1N4148
6901	4822 130 81624	1.5KE27
6902	5322 130 30684	1N4002GPE
6903	4822 130 30862	BZX79-C
6904	4822 130 34173	BZX79-C
6905	4822 130 34173	BZX79-C
6908	4822 130 30621	1N4148
6909	5322 130 30684	1N4002GPE
6911	4822 130 30621	1N4148
6912	5322 130 30684	1N4002GPE
6913	5322 130 30684	1N4002GPE
6914	5322 130 30684	1N4002GPE
6950	4822 130 10064	BLINKING LED
6951	4822 130 60379	LED ORANGE - RC189/00
6951	4822 130 83694	LED GREEN - RC189/80
6953	4822 130 60379	LED ORANGE - RC189/00
6953	4822 130 83694	LED GREEN - RC189/80
6955	4822 130 60379	LED ORANGE - RC189/00
6955	4822 130 83694	LED GREEN - RC189/80
6957	4822 130 60379	LED ORANGE - RC189/00
6957	4822 130 83694	LED GREEN - RC189/80

MAIN PCB : TRANSISTORS / IC

7501	4822 209 32969	UPC1228H
7502	4822 130 44283	BC636
7503	4822 130 60511	BC847B
7601	4822 209 32427	HA13119
7701	4822 209 15515	TMP47C820DF/50520
7731	4822 900 11055	ST24W04B4 - RC189/00
7731	4822 900 11074	ST24W04B4 - RC189/80
7702	4822 130 60511	BC847B
7801	5322 209 14481	HEF4053BT

MAIN PCB : TRANSISTORS / IC

7821	4822 209 31981	SAA6579T
7903	4822 130 63539	BD241A
7904	4822 130 40959	BC547B
7905	4822 130 40959	BC547B
7907	4822 130 60511	BC847B
7908	4822 130 60511	BC847B
7911	4822 130 60511	BC847B
7912	4822 130 60511	BC847B
7913	4822 130 60511	BC847B

AUDIO PCB

3851	4822 102 40094	POTMETER VOL W FAD
3852	4822 100 12299	POTMETER 50K TONE
3853	4822 100 12298	POTMETER 50K BALANCE
6854	4822 130 30621	1N4148
7855	4822 130 62513	SS8050C
7856	4822 130 62513	SS8050C

NOTE : "Service code for standard components are not listed here, please refer to Components catalogue from Philips Consumer Service."

PARTSLIST 79RC169/00/80

MAIN PCB : MISCELLANEOUS

1100	4822 210 10746	TUNER IC96 7SV
1711	4822 242 81002	RES CER 6MHZ0 CST6.00MGW
1712	4822 242 70938	RES XTL 32KHZ768
1751	4822 135 00114	LCD1 - NEGATVE
1819	4822 276 13091	SWI TACT 1P 50MA 12V
1820	4822 276 13091	SWI TACT 1P 50MA 12V
1821	4822 276 13091	SWI TACT 1P 50MA 12V
1822	4822 276 13091	SWI TACT 1P 50MA 12V
1823	4822 276 13091	SWI TACT 1P 50MA 12V
1824	4822 276 13091	SWI TACT 1P 50MA 12V
1825	4822 276 13091	SWI TACT 1P 50MA 12V
1826	4822 276 13091	SWI TACT 1P 50MA 12V
1827	4822 276 13091	SWI TACT 1P 50MA 12V
1828	4822 276 13091	SWI TACT 1P 50MA 12V
1829	4822 276 13091	SWI TACT 1P 50MA 12V
1830	4822 276 13091	SWI TACT 1P 50MA 12V
1851	4822 242 72195	QUARZ 4,332 MHZ AT51
1900	4822 265 10936	FLYLEAD + ISO
1901	4822 321 62645	FLYLEAD + ISO SPK CONN.
1911	4822 134 10082	LAMP 12V 50MA CLEAR
1912	4822 134 10082	LAMP 12V 50MA CLEAR
1921	4822 134 10069	LAMP 14V 40MA WITHOUT COLOUR CAP
1922	4822 134 10069	LAMP 14V 40MA WITHOUT COLOUR CAP

MAIN PCB : CAPACITOR

2705	5322 125 50295	CTRM 50V 6P- 50P NP0

MAIN PCB : COILS

5701	4822 157 53473	IND FXD LAL04 1000U PM10
5901	4822 156 21434	COIL CHOKE LU019

MAIN PCB : DIODE

6701	4822 130 30621	1N4148
6901	4822 130 81624	1.5KE27
6902	5322 130 30684	1N4002GPE
6903	4822 130 30862	BZX79-C
6904	4822 130 34173	BZX79-C
6905	4822 130 34173	BZX79-C
6908	4822 130 30621	1N4148
6909	5322 130 30684	1N4002GPE
6911	4822 130 30621	1N4148
6912	5322 130 30684	1N4002GPE
6913	5322 130 30684	1N4002GPE
6914	5322 130 30684	1N4002GPE
6950	4822 130 10064	BLINKING LED
6951	4822 130 60379	LED ORANGE - RC169/00
6951	4822 130 83694	LED GREEN - RC169/80
6953	4822 130 60379	LED ORANGE - RC169/00
6953	4822 130 83694	LED GREEN - RC169/80
6955	4822 130 60379	LED ORANGE - RC169/00
6955	4822 130 83694	LED GREEN - RC169/80
6957	4822 130 60379	LED ORANGE - RC169/00
6957	4822 130 83694	LED GREEN - RC169/80

MAIN PCB : TRANSISTORS / IC

7501	4822 209 32969	UPC1228H
7502	4822 130 44283	BC636
7503	4822 130 60511	BC847B
7601	4822 209 32427	HA13119
7701	4822 209 15515	TMP47C820DF/50520
7702	4822 130 60511	BC847B
7703	4822 900 11056	ST24W04B6 - RC169/00
7703	4822 900 11057	ST24W04B6 - RC169/80
7801	5322 209 14481	HEF4053BT

MAIN PCB : TRANSISTORS / IC

7821	4822 209 31981	SAA6579T
7903	4822 130 63539	BD241A
7904	4822 130 40959	BC547B
7905	4822 130 40959	BC547B
7907	4822 130 60511	BC847B
7908	4822 130 60511	BC847B
7911	4822 130 60511	BC847B
7912	4822 130 60511	BC847B
7913	4822 130 60511	BC847B

AUDIO PCB

3851	4822 102 40094	POTMETER VOL W FAD
3852	4822 100 12299	POTMETER 50K TONE
3853	4822 100 12298	POTMETER 50K BALANCE
6854	4822 130 30621	1N4148
7855	4822 130 62513	SS8050C
7856	4822 130 62513	SS8050C

NOTE : "Service code for standard components are not listed here, please refer to Components catalogue from Philips Consumer Service."

Car cassette deck CDS36-PS2

CDS36-PS3

Service
Service
Service

PHIL-05175

ServiceManual

12 V

GENERAL

The CDS-PS2 and CDS-36PS3 are updated versions of the CDS-36PS. The difference between the -PS2 and -PS3 versions exists of the shape of the EJECT, FF and REW levers.

TECHNICAL DATA

Operating voltage	:	10.5 - 16VDC (13.2VDC nom.)
Tape speed	:	4.76 cm/s (± 2%)
Number of tracks	:	2 x 2
Wow and Flutter	:	≤ 0.35% RMS (10-45°C)
S/N ratio	:	≥ 46dB
Crosstalk suppression (track 2-3)	:	≥ 40dB
Channel seperation (track 1-2/3-4)	:	≥ 30dB
Fast winding time	:	≤ 165 sec (C-60)

PCS 91 009 GB

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PHILIPS

MAINTENANCE

The tape deck mechanism requires periodic cleaning.

Cleaning with alcohol or spirit
- Playback head pos.82
- Capstans/flywheels pos.92/94 and pressure rollers pos.62/84
- Belts pos.63/93 and pulleys pos.64/71

ADJUSTMENTS AND CHECKS

Equipment required:
- Universal test cassette SBC419 - 4822 397 30069
- Universal test cassette SBC420 - 4822 397 30071
- Friction test cassette 811/CTM - 4822 395 30054
- Spring scale 50-500g - 4822 395 80028
- Wow & Flutter meter
- AC mV meters

1. Azimuth (fig.1)

Azimuth alignment should be carried out on a COMPLETE car radio set; proceed as follows:
- Connect the millivolt-meters to the loud-speaker outputs.
- Insert test cassette SBC419 or SBC420, select NOR (normal play) and play the 10 kHz signal.
- Adjust Azimuth screw "A" for equal and maximum output voltage reading for both right and left channel.
- Switch to REV (reverse play) and play the 10 kHz signal.
- Repeat the adjustment with screw "B".
- Check the Azimuth again during NOR (normal) play.
- Repeat the procedure if necessary.

2. Roller pressure

The pressure on the capstan should be 250 -350 grammes (2.5 - 3.5 N).
This pressure is measured as follows (in NOR and REV play):
- Select NOR play mode.
- Push the pressure roller pos. 84 back at the shown point by means of the spring scale.
- At the point where the pressure roller and capstan (of flywheel pos.92) just disengage the spring scale should be read.
- If the pressure is incorrect, replace spring pos.86.
- Select REV play mode.
- Push the pressure roller pos.62 back at the shown point by means of the spring scale.
- At the point where the pressure roller and capstan (of flywheel pos.94) just disengage the spring scale should be read.
- If the pressure is incorrect, replace spring pos.66.

3. Friction clutch (reel assy) 55

- Insert friction test cassette 811/CTM (NOR and REV).
- Play mode take-up torque should be 35 - 75 g/cm.
- Fast wind torque should be 40 - 150 g/cm.
- If the torque is incorrect, replace clutch pos.55.

4. Wow & Flutter / tape speed (fig.1)

This check should be carried out on a COMPLETE car radio set; proceed as follows:
- Connect the wow & flutter meter to the LS outputs.
- Insert test cassette SBC419 or SBC420 and play the 3,150 Hz signal.
- The wow & flutter value should be ≤ 0.35%.
- The tape speed should be 4.76 cm/s (± 2%).
- The tape speed can be adjusted with screw "C".

In case of an excessive wow & flutter value, check the following parts for correct functioning:
- Motor pos.56
- Pressure rollers pos.62 and 84
- Belts pos.63 and 93
- Flywheels pos.92 and 94
- Pulley 71

DISASSEMBLY PROCEDURE

Refer to figures 2-5 for the procedure.

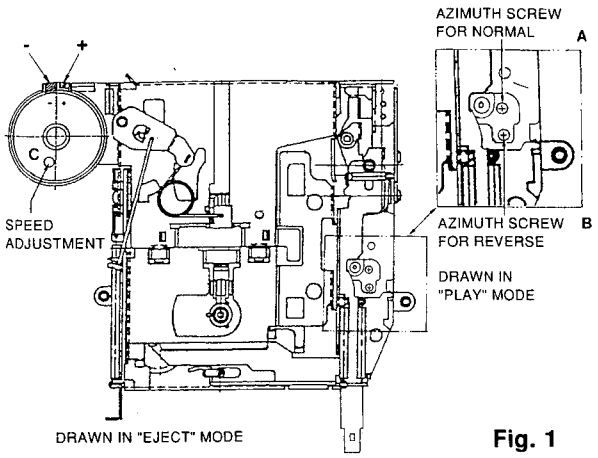


Fig. 1

CASSETTE HOLDER 51

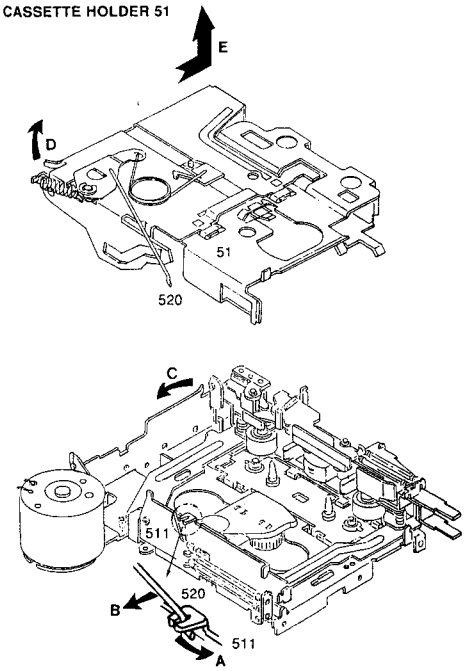


Fig. 2

GEAR UNIT 67

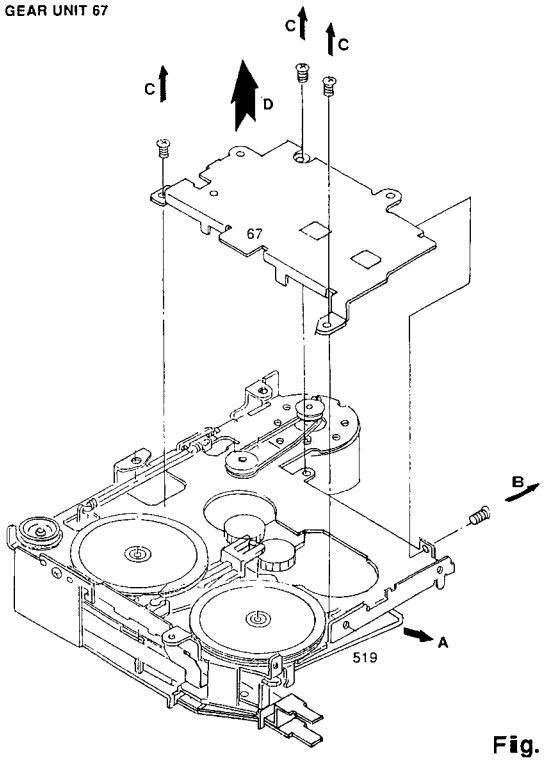


Fig. 3

LEVER UNIT 89, PRESSURE ROLLERS 62,84, HEAD 82

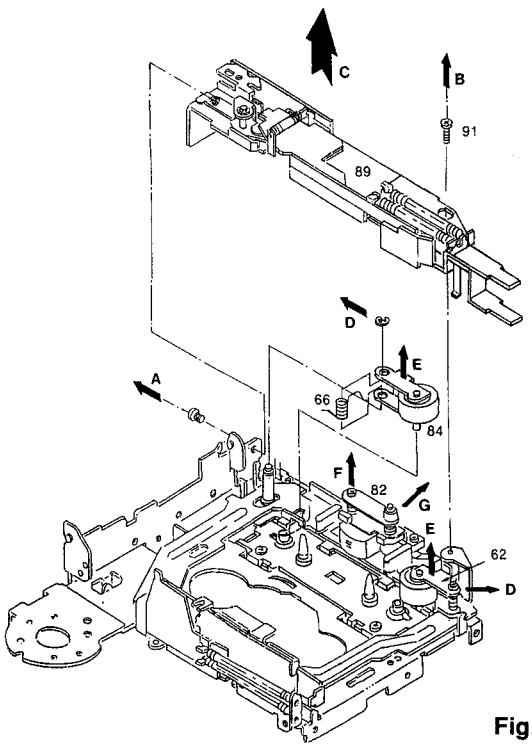


Fig. 4

HEAD SUPPORT 68

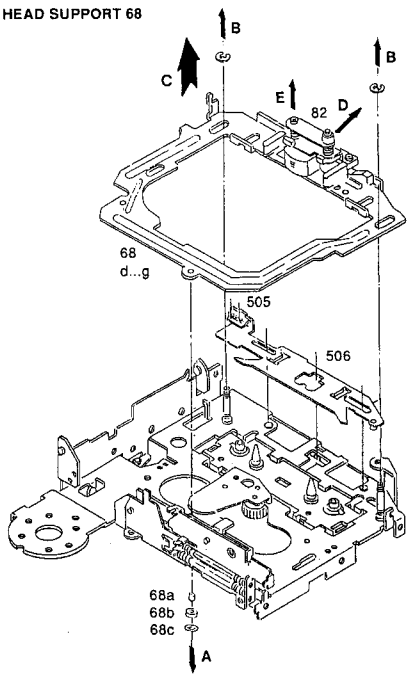
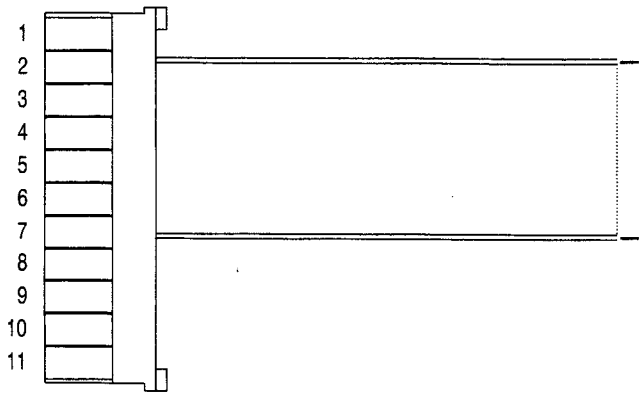


Fig. 5

CONNECTIONS



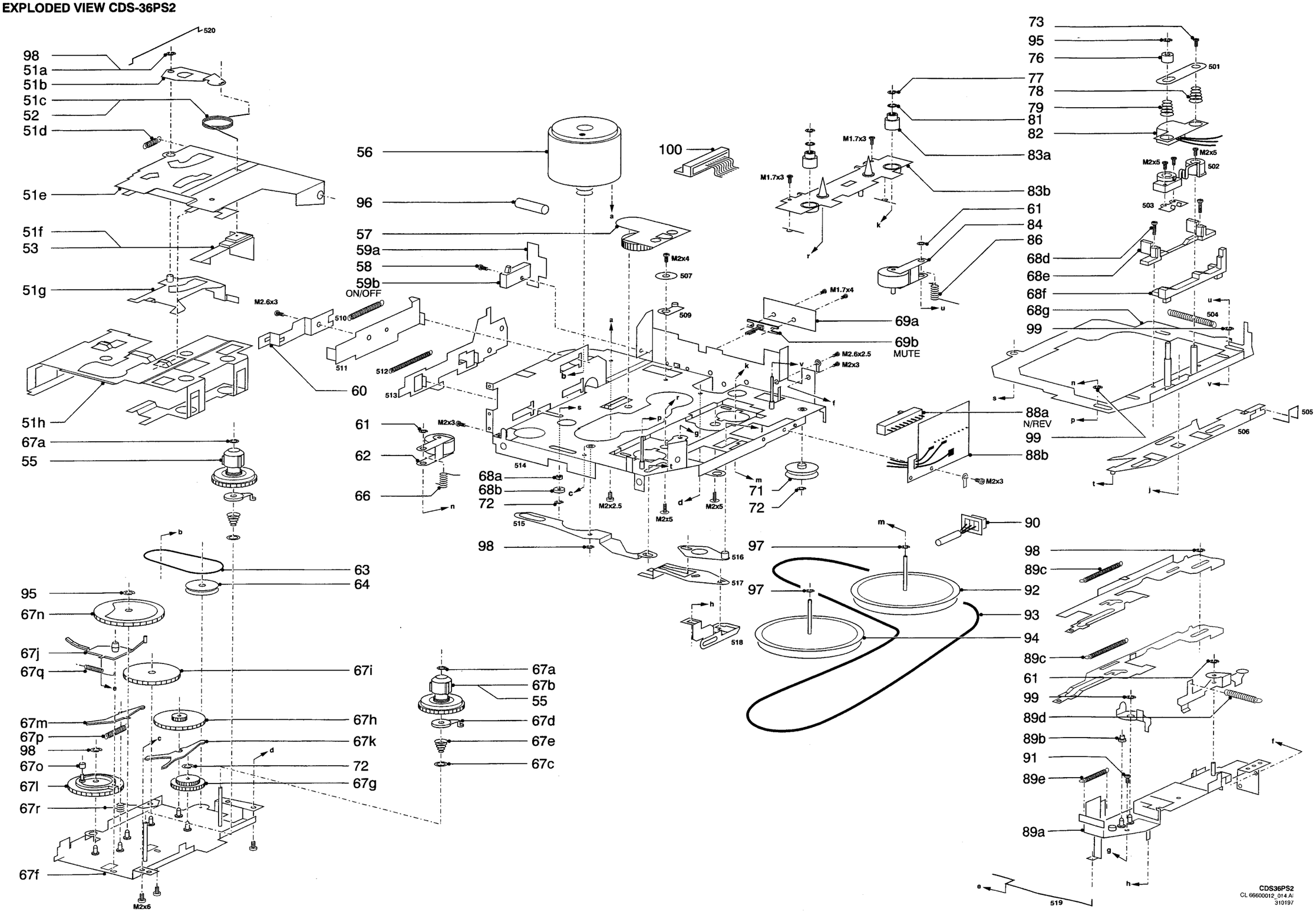
11 POLE CONNECTOR

Pin	Signal
1	N.C.
2	TRACK SWITCH
3	TR.SW.COM / GND
4	MUTE SWITCH A
5	PLAY SWITCH
6	MOTOR +
7	MUTE SWITCH B
8	N.C.
9	N.C.
10	N.C.
11	N.C.

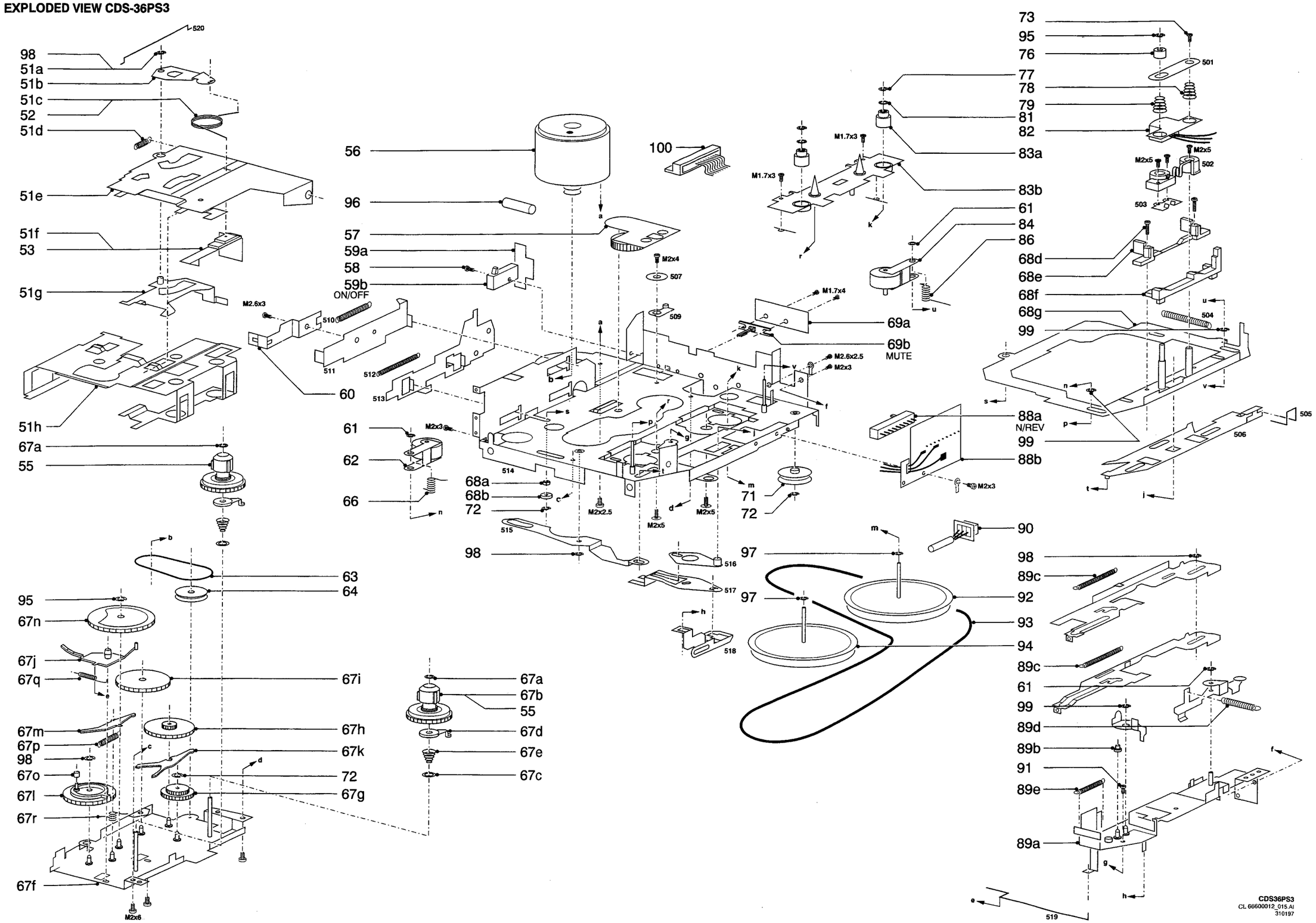
3 POLE HEAD CONNECTOR

Pin	Signal
1	COMMON
2	LEFT
3	RIGHT

EXPLODED VIEW CDS-36PS2



EXPLODED VIEW CDS-36PS3



MECHANICAL PARTS

	4822 691 10456	Deck CDS-36PS2 complete
	4822 691 10562	Deck CDS-36PS3 complete
52	4822 492 63888	Tumble spring
53	4822 403 53313	Tape hooker / cassette guide
55	4822 535 10456	Reel spindle assy
57	4822 522 10607	Tape unit gear arm assy
58	4822 502 14412	Screw M1.7x6
61	4822 530 80699	Ret. ring 1.5
62	4822 528 11082	Roller arm assy R
63	4822 358 31263	Sub belt
64	4822 522 33229	Pulley gear
66	4822 492 11379	Roller arm spring R
67a	4822 532 12754	Plate 1.5x3.2xT0.2
67d	4822 528 11085	Detector cam assy
67e	4822 492 11383	Back tension spring
67f	4822 464 10255	Reel base assy
67g	4822 522 10602	Idler gear
67h	4822 522 10603	Reduction gear A
67i	4822 522 10604	Reduction gear B
67j	4822 402 10662	Ratchet
67k	4822 402 10663	Sensor arm
67l	4822 522 10605	Selector gear
67m	4822 402 10665	Gear lock arm
67n	4822 522 10606	Detector gear
67o	4822 532 12752	Collar (selection gear)
67p	4822 492 11376	Gear lock arm spring
67q	4822 492 11381	Ratchet spring
67r	4822 492 11382	Push spring
68a	4822 528 11086	HP roller B
68b	4822 528 11087	HP roller A
68c/99	4822 532 12757	Ret. ring 2.5
68e	4822 463 11127	Tape guide
68f	4822 402 10664	Adjuster link
71	4822 528 81551	Idle pulley A
72	4822 532 51952	Plate 1.2x3.0xT0.25
73	4822 502 14414	Screw M2x4
76	4822 532 21456	FF roller
77	4822 530 80701	Ret. ring 1.6
78	4822 492 52301	Adjuster arm spring A
79	4822 492 52302	Adjuster arm spring B
81	4822 530 70628	Plate 2.1x3.2xT0.25
84	4822 528 11083	Roller arm assy F
86	4822 492 11378	Roller arm spring F
89a	4822 402 10661	Change lever bracket base
89b	4822 528 11088	Program roller
89c	4822 492 11374	FF/REW lever spring
89d	4822 492 11375	Lock lever spring
89e	4822 492 11377	Program arm spring
91	4822 502 14413	Screw M2x4
92	4822 528 11081	Flywheel assy F
93	4822 358 31181	Main belt
94	4822 528 11084	Flywheel assy R
95	4822 532 12753	Plate 1.5x3.2xT0.25
97	4822 532 12755	Plate 2.1x5.5xT0.05
98	4822 532 12756	Ret. ring 2.0

ELECTRICAL PARTS

56	4822 361 10948	Motor assy
59b	4822 277 21603	Power switch
69b	4822 276 13519	Mute switch
82	4822 249 30211	Head assy
88a	4822 277 21743	Slide switch
90	4822 320 11823	3-pole wire assy
100	4822 320 11822	11-pole wire assy

ACCESSORIES

4822 395 30054	811/CTM
4822 397 30069	SBC419
4822 397 30071	SBC420
4822 389 20035	Drop-in cassette

MECHANICAL PARTS

	4822 691 10456	Deck CDS-36PS2 complete
	4822 691 10562	Deck CDS-36PS3 complete
52	4822 492 63888	Tumble spring
53	4822 403 53313	Tape hooker / cassette guide
55	4822 535 10456	Reel spindle assy
57	4822 522 10607	Tape unit gear arm assy
58	4822 502 14412	Screw M1.7x6
61	4822 530 80699	Ret. ring 1.5
62	4822 528 11082	Roller arm assy R
63	4822 358 31263	Sub belt
64	4822 522 33229	Pulley gear
66	4822 492 11379	Roller arm spring R
67a	4822 532 12754	Plate 1.5x3.2xT0.2
67d	4822 528 11085	Detector cam assy
67e	4822 492 11383	Back tension spring
67f	4822 464 10255	Reel base assy
67g	4822 522 10602	Idler gear
67h	4822 522 10603	Reduction gear A
67i	4822 522 10604	Reduction gear B
67j	4822 402 10662	Ratchet
67k	4822 402 10663	Sensor arm
67l	4822 522 10605	Selector gear
67m	4822 402 10665	Gear lock arm
67n	4822 522 10606	Detector gear
67o	4822 532 12752	Collar (selection gear)
67p	4822 492 11376	Gear lock arm spring
67q	4822 492 11381	Ratchet spring
67r	4822 492 11382	Push spring
68a	4822 528 11086	HP roller B
68b	4822 528 11087	HP roller A
68c/99	4822 532 12757	Ret. ring 2.5
68e	4822 463 11127	Tape guide
68f	4822 402 10664	Adjuster link
71	4822 528 81551	Idle pulley A
72	4822 532 51952	Plate 1.2x3.0xT0.25
73	4822 502 14414	Screw M2x4
76	4822 532 21456	FF roller
77	4822 530 80701	Ret. ring 1.6
78	4822 492 52301	Adjuster arm spring A
79	4822 492 52302	Adjuster arm spring B
81	4822 530 70628	Plate 2.1x3.2xT0.25
84	4822 528 11083	Roller arm assy F
86	4822 492 11378	Roller arm spring F
89a	4822 402 10661	Change lever bracket base
89b	4822 528 11088	Program roller
89c	4822 492 11374	FF/REW lever spring
89d	4822 492 11375	Lock lever spring
89e	4822 492 11377	Program arm spring
91	4822 502 14413	Screw M2x4
92	4822 528 11081	Flywheel assy F
93	4822 358 31181	Main belt
94	4822 528 11084	Flywheel assy R
95	4822 532 12753	Plate 1.5x3.2xT0.25
97	4822 532 12755	Plate 2.1x5.5xT0.05
98	4822 532 12756	Ret. ring 2.0

ELECTRICAL PARTS

56	4822 361 10948	Motor assy
59b	4822 277 21603	Power switch
69b	4822 276 13519	Mute switch
82	4822 249 30211	Head assy
88a	4822 277 21743	Slide switch
90	4822 320 11823	3-pole wire assy
100	4822 320 11822	11-pole wire assy

ACCESSORIES

4822 395 30054	811/CTM
4822 397 30069	SBC419
4822 397 30071	SBC420
4822 389 20035	Drop-in cassette

Car cassette deck TN-301NX

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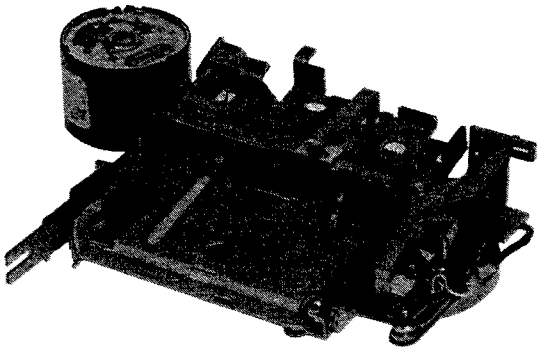

33770A22

Service Manual

12 V

(GB)
TECHNICAL DATA

Tape speed	:	4,76 cm/sec. +3% -2%
Wow & flutter	:	< 0,35% (JIS)
Operating voltage	:	10 V ~ 16 V
Fast winding time	:	< 180 secs (C-60)

(NL)
TECHNISCHE GEGEVENS

Bandsnelheid	:	4,76 cm/sec. +3% -2%
Wow & flutter	:	< 0,35% (JIS)
Werkingsspanning	:	10 V ~ 16 V
Tijd snel opspoelen	:	< 180 sec (C-60)

(F)
CARACTERISTIQUES TECHNIQUES

Vitesse de défilement	:	4,76 cm/sec. +3% -2%
Pleurage et scintillement	:	< 0,35%
Tension de fonctionnement	:	10 V ~ 16 V
Durée de bobinage rapide	:	< 180 sec (C-60)

(D)
TECHNISCHE DATEN

Bandgeschwindigkeit	:	4,76 cm/sec. +3% -2%
Gleichlaufschwankungen	:	< 0,35%
Betriebsspannung	:	10 V ~ 16 V
SVL-Dauer	:	< 180 s (C-60)

(I)
DATI TECNICI

Velocità di trascinamento	:	4,76 cm/sec. +3% -2%
Wow e flutter	:	< 0,35%
Tensione di lavoro	:	10 V ~ 16 V
Tempo di avvolgimento	:	< 180 s (C-60)

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4822 725 24125

(GB) MAINTENANCE

The cassette mechanism requires periodic cleaning, as well as periodic lubrification of the principal points.

1. Cleaning with alcohol or spirit

Head, capstan, pressure roller, belt, pulleys.

To clean head, pressure roller and capstan it is also possible to use a drop-in cassette (SBC114–4822 389 20035).

2. Lubrification instructions

Refer to exploded view.

(NL) ONDERHOUD

Het cassette mechanisme dient periodiek schoongemaakt en op de belangrijkste punten gesmeerd te worden.

1. Schoonmaken met alcohol of spiritus

Kop, toonas, drukrol, snaar, poelies.

Voor het reinigen van kop, drukrol en toonas kan ook de "drop-in" cassette (SBC114–4822 389 20035) worden gebruikt.

2. Smeervoorschrift

Zie "exploded view" tekening.

(F) MAINTENANCE

Le mécanisme de cassette doit être nettoyé régulièrement et graissé à ses points cardinaux.

1. Nettoyage à l'alcool ou à l'alcool éthylique

Tête, cabestan, galet presseur, courroie, poulies.

Pour ce qui est du nettoyage de la tête, du galet presseur et du cabestan on pourra également utiliser la cassette "drop in" (SBC114–4822 389 20035).

2. Lubrification

Voir le dessin de l'éclaté mécanique.

(D) WARTUNG

Der Cassettenteil soll regelmässig gereinigt und an den wichtigsten Stellen geschmiert werden.

1. Reinigen mit Alkohol oder Spiritus

Kopf, Tonwelle, Andruckrolle, Pese, Seilrollen.

Zum Reinigen von Kopf, Andruckrolle und Tonwelle kann auch die "drop-in" Cassette (SBC114–4822 389 20035) benutzt werden.

2. Schmiervorschrift

Siehe Explosionszeichnung.

(I) MANUTENZIONE

La meccanica del registratore richiede pulizie periodiche, come pure periodiche lubrificazioni dei punti principali.

1. Pulizia con alcool o spirito

Testina, capstan, rullo pressore, cinghia, puleggie.

Per la pulizia della testina, del rullo pressore e del capstan si può usare la cassette (SBC114–4822 389 20035).

2. Istruzioni per la lubrificazione

Fare riferimento all'esploso.

(GB) ADJUSTMENT

Equipment required:

- spring scale 50–500 g	4822 395 80028
- friction test cassette	4822 395 30054
- universal test cassette SBC420	4822 397 30071
- wow & flutter meter	

Azimuth

Azimuth alignment should be carried out on a complete car radio; proceed as follows:

- connect the millivoltmeter to the loudspeaker outputs.
- insert test cassette SBC420 and play back the 10 kHz signal.
- Turn the azimuth adjust screw (M2X10) for equal and maximum output voltage reading for both the LH and RH channel.
- lockpaint the azimuth adjust screw.

CHECKS

1. Pressure roller pressure

The pressure exerted by the pressure roller on the capstan should be in the 250 - 350 g range (refer to Fig. 1).

This pressure is measured as follows:

- select Play mode.
- push the pressure roller back at the given point by means of the spring scale.
- at the point where pressure roller and capstan just disengage the spring scale should be read.

If the pressure is not correct, replace spring 67.

2. Friction clutch 62

- insert friction test cassette.
- play take-up and fast wind torque should be between 35 and 75 gcm.

If the play take-up torque deviates from the aforementioned value, friction clutch 62 should be replaced.

3. Wow & flutter/tape speed

This check is carried out on a complete car radio; proceed as follows:

- connect the wow & flutter meter to the loudspeaker output.
- insert test cassette SBC420 and play back the 3150Hz signal.
- the wow & flutter value should be <0,35%.
- tape speed should be 4,76 cm/sec (+3%, -2%); no speed adjustment facility has been provided.

In the event of an excessive wow and flutter value, the following parts should be checked as to correct functioning:

- motor
- pressure roller
- drive belt (in case of replacement, clean flywheel pulley)
- friction clutch
- flywheel

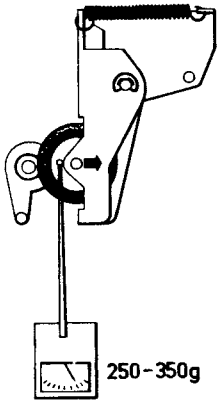


Fig. 1

(NL) INSTELLINGEN

Benodigde meetinstrumenten:

- veerdrukmeter 50–500 g	4822 395 80028
- frictie testcassette	4822 395 30054
- universele testcassette SBC420	4822 397 30071
- wow & flutter meter	

Azimuth

De azimuth instelling dient te geschieden met de autoradio kompleet en wel als volgt:
- sluit millivoltmeter aan op de luidsprekeruitgangen
- breng de testcassette SBC420 in en geef het 10 kHz signaal weer.
- stel met behulp van de azimuthschroef (M2X10) de uitgangsspanning zo in dat deze voor zowel het linker- als het rechterkanaal gelijk en maximaal is.
- lak azimuthschroef af.

CONTROLES

1. Drukrolkracht

De drukrolkracht tegen de toonas moet liggen tussen 250 en 350 gram (zie fig. 1).

Deze wordt als volgt gemeten:
- breng cassettedeck in stand weergave.
- druk de drukrol met de veerdrukmeter in het aangegeven punt terug.
- op het moment dat de drukrol los komt van de toonas moet de meteraanwijzing worden afgelezen.

Indien de drukrolkracht niet juist is moet veer 67 worden vervangen.

2. Frictie 62

- breng de frictie-testcassette in.
- de afspeel-/snelspoelfrictie moet 35–75 gcm zijn.

Indien de afspeelfrictie afwijkt van bovengenoemde waarde, dient frictiekoppeling 62 te worden vervangen.

3. Wow & flutter/bandsnelheid

De controle dient te geschieden met de autoradio compleet en wel als volgt:
- sluit wow & flutter meter aan op de luidsprekeruitgang.
- breng de testcassette SBC420 in en geef het 3150 Hz signaal weer.
- de jengelwaarde moet <0,35% zijn.
- de bandsnelheid moet zijn 4,76 cm/sec +3%, -2%, de snelheid kan niet worden ingesteld.

Bij een buitensporige jengelwaarde dienen de volgende onderdelen op hun juiste werking te worden gecontroleerd:
- motor
- drukrol
- snaar (bij vervanging de vliegwielpoelie schoonmaken)
- frictiekoppeling
- vliegwiel

(F) REGLAGES

Instruments de mesure requis:

- dynamomètre 50–500 g	4822 395 80028
- cassette d'essai de la friction	4822 395 30054
- cassette d'essai universelle SBC420	4822 397 30071
- instrument du pleurage et scintillement	

L'azimuth

Le réglage de l'azimuth doit se faire lorsque l'auto-radio est au complet; on procèdera alors comme suit:
- brancher le millivoltmètre sur les sorties de haut-parleur.
- insérer la cassette d'essai SBC420 et reproduire le signal de 10 kHz.
- à l'aide de la vis réglant l'azimuth (M2X10) régler la tension de sortie de façon qu'elle soit égale et au maximum pour le canal de gauche tout comme celui de droite.
- fixer la vis de l'azimuth à la laque.

CONTROLES

1. Force du galet presseur

La force du galet presseur contre le cabestan doit se situer entre les 250 et 350 g. (voir fig. 1).

Mesurer comme suit.:
- positionner la mécanique sur reproduction.
- retirer le galet presseur á l'aide du dynamométre sur le point indiqué.
- au moment où le galet pressuer se détache du cabestan on lira l'affichage sur l'instrument.

Si la force de pression n'est pas exacte, remplacer le ressort.

2. Friction 62

- introduire la cassette d'essai de friction.
- la friction au défilement et au bobinage rapide doit se situer entre 35 et 75 gcm.

Si la friction d'enroulement s'écarte de la valeur donnée ci-dessus, on procédera au remplacement du couple de friction 62.

3. Pleurage et scintillement/vitesse de défilement

Le contrôle doit se faire lorsque l'auto-radio est au complet, on y alors procèdera de la manière suivante:
- brancher l'instrument du pleurage sur la sortie de haut-parleur.
- introduire la cassette d'essai SBC420 et reproduire le signal de 3150 Hz.
- la valeur de pleurage doit être <0,35%.
- la vitesse de défilement doit être 4,76 sec, +3%, -2%, la vitesse n'est pas réglable.

Si le taux de pleurage s'écarte de la valeur type, il faudra vérifier le fonctionnement des composants suivants:
- moteur
- galet presseur
- courroie d'entraînement (en cas de remplacement, nettoyer le poulie du volant)
- couple de friction
- volant

(D) EINSTELLUNGEN

Benötigte Messgeräte:

- Federwaage 50–500 g	4822 395 80028
- Friktionstestcassette	4822 395 30054
- Universal-Testcassette SBC420	4822 397 30071

- Gerät zum Messen der Tonhöhenschwankungen ("wow & flutter")

Azimuth

Die Azimutheinstellung soll mit dem kompletten Autoradio stattfinden, und zwar wie folgt:
- Millivoltmeter an die Lautsprecherausgänge schalten.
- Testcassette SBC420 einlegen und das 10–kHz-Signal wiedergeben.
- Mit der Azimuth-Einstellschraube (M2X10) die Ausgangsspannung so einstellen, dass sie für sowohl den linken als auch den rechten Kanal gleich ist und den Höchstwert aufweist.
- Azimuth-Einstellschraube lacksichern.

KONTROLLEN

1. Andruckrollendruck

Der Andruckrollendruck an der Tonwelle soll zwischen 250 und 350 g liegen (siehe Bild 1).

Er wird wie folgt gemessen:
- Cassettendeck in Wiedergabestellung bringen.
- Die Andruckrolle mit der Federwaage an der gekennzeichneten Stelle zurückdrücken.
- Im Augenblick als sich die Andruckrolle von der Tonwelle löst, soll die Anzeige an der Federwaage abgelesen werden.

Falls der Andruckrollendruck nicht richtig ist, muss Feder 67 ausgewechselt werden.

2. Reibkupplung 62

- Friktionstestcassette einlegen.
- Die VL-/SVL-Friktion soll 35–75 gcm betragen.

Wenn die VL-Friktion vom vorgenannten Wert abweicht, muss Friktionskupplung 62 ausgewechselt werden.

3. Tonhöhenschwankungen/Bandgeschwindigkeit

Die Kontrolle soll mit kompletten Autoradio wie folgt vorgenommen werden.:
- Gerät zum Messen der Tonhöhenschwankungen an den Lautsprecherausgang schalten.
- Testcassette SBC420 einlegen und das 3150 Hz-Signal wiedergeben.
- Der Jaulwert soll < 0,35% sein.
- Die Bandgeschwindigkeit soll 4,76 s (+3%, -2%) sein; die Geschwindigkeit lässt sich nicht einstellen.

Bei einem übermässigen Jaulwert sollen folgende Bauteile auf ihr richtiges Funktionieren geprüft werden.:
- Motor
- Andruckrolle
- Antriebspese (beim Auswechseln die Schwungradseilrolle reinigen)
- Reibkupplung
- Schwungrad

(I) REGOLAZIONI

Strumenti richiesti:

- Dinamometro 50–500 g	4822 395 80028
- Cassetta campione per la frizione	4822 395 30054
- Cassetta campione universale SBC420	4822 397 30071

- Strumento wow e flutter

Azimuth

La regolazione dell'azimuth deve essere effettuata sul riproduttore collegato all'autoradio procedendo nel seguente modo:
- Collegare un millimetro all'uscita per altoparlante.
- Inserire una cassetta campione SBC420 e riprodurre il segnale a 10 kHz.
- Ruotare la vite per la regolazione dell'azimuth (M2X10) finché la tensione letta per entrambi i canali sia la più elevata.
- Fissare con lacca la vite di regolazione per l'azimuth.

CONTROLLI

1. Pressione del rullo preminastro

La pressione esercitata dal rullo pressore sul capstan deve essere compresa tra 250–350 gr (vedere fig. 1).

Questa pressione deve essere misurata nel seguente modo:
- Mettere l'apparecchio in Play
- Spingere il rullo pressore indietro al punto dato per mezzo del dinamometro.
- Nel punto dove il rullo pressore e il capstan sono liberi la scala del dinamometro darà una certa indicazione.

Se la pressione del rullo preminastro non è corretta sostituire la molla.

2. Forza della frizione 62

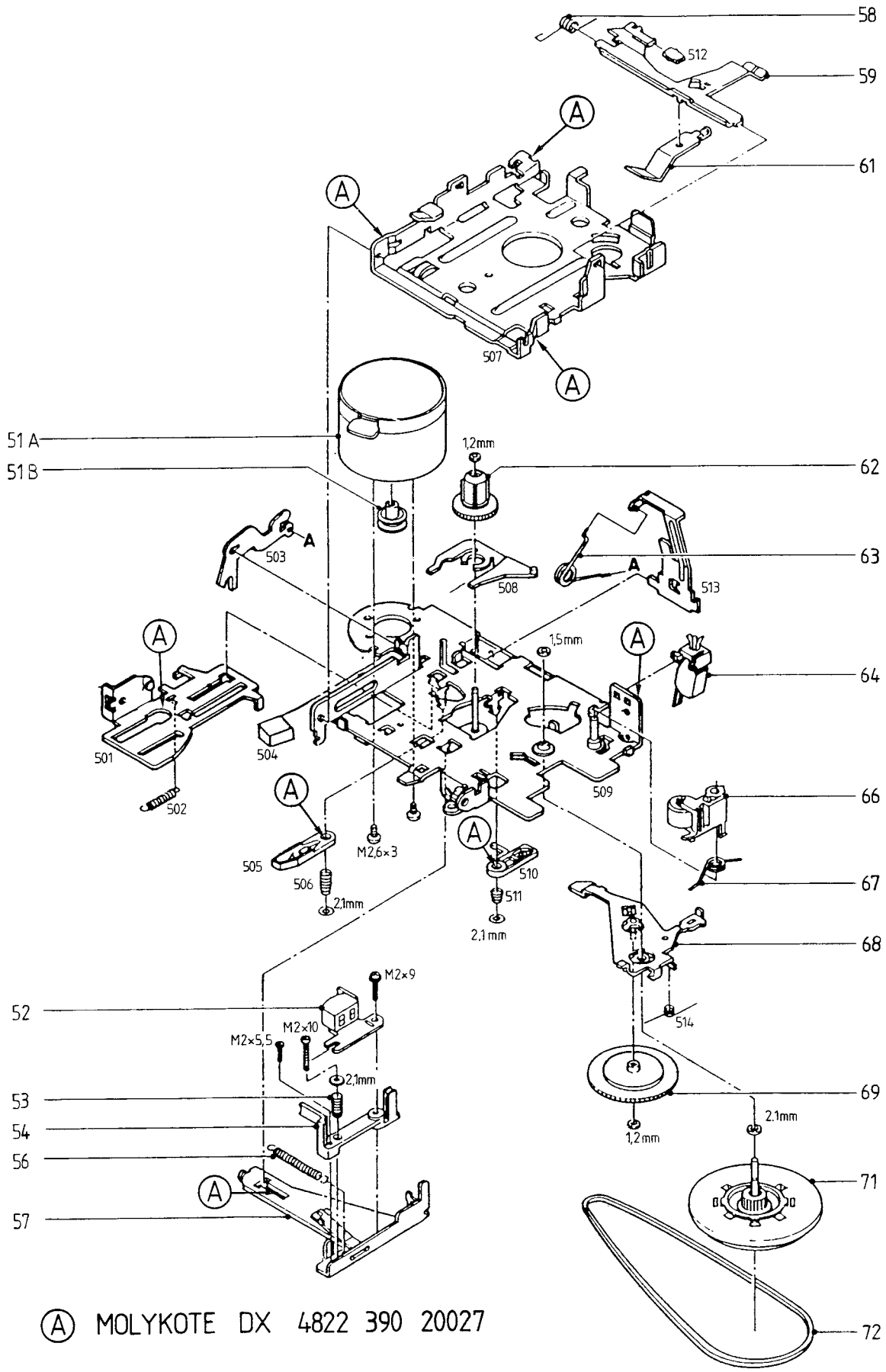
- Inserire la cassetta per il controllo della frizione.
- Riprodurre e leggere l'indicazione sul piattello di trascinamento; deve essere compresa tra 35 e 75 gcm.

Se in posizione play l'indicazione del piattello di trasciamento non è compresa nei valori sopra riportati deve essere sostituita la frizione 62.

3. Wow e flutter/velocità del nastro

Questo controllo deve essere effettuato sul riproduttore collegato all'autoradio procedendo nel seguente modo:
- Collegare un misuratore di Wow e flutter all'uscita per altoparlante.
- Inserire la cassetta campione SBC420 e riprodurre il segnale a 3150 Hz.
- Il valore di Wow e flutter deve essere < 0,35%.
- La velocità deve essere 4,76 cm/sec (+3%, -2%); non è prevista una regolazione semplice.

Nel caso ci sia un valore eccessivo di Wow e flutter, bisogna controllare le seguenti parti se funzionano in modo corretto:
- Motore
- Rullo pressore
- Cinghia di trascinamento (nel caso di sostituzione, pulire la puleggia del volano)
- Frizione
- Volano



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54	4822 404 21247	59	4822 466 82941		64	4822 271 30778	71	4822 528 60396
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